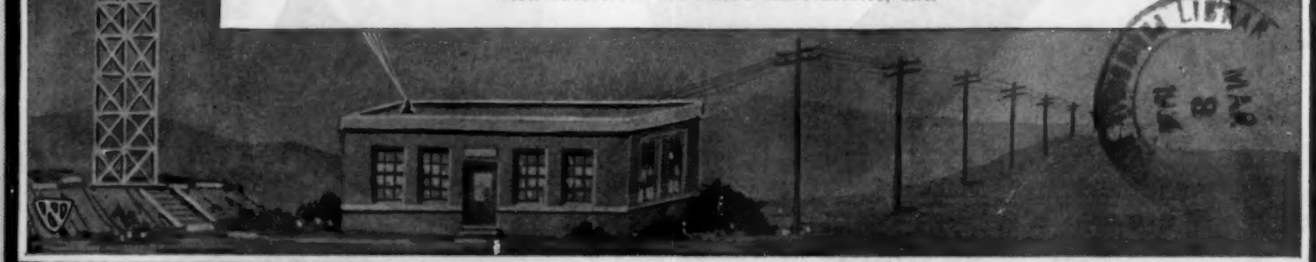
MARCH, 1921 20 CENTS

PACIFIC RADIO NEWS

Pioneer Journal of Western Radio News and Development.



2-6

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TYPE C-300

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TYPE C-300

$5.00

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"No doubt you would like to know the wonderful work I have accomplished using your new C-300 Detector Tube. Since I have installed your tubes at my station located at Burlingame, California, call 6 BJ, I have heard more distant amateur stations than I have ever heard in my life. I have been a constant user of vacuum tubes for the past ten years, and believe me, I know a real tube when I see it. I have succeeded in hearing stations in Nebraska and Arizona with only one step of amplification and have established communication with many that I never before could hear. You have my permission to use this letter so the many amateurs throughout the United States will know what I think of your most excellent tube. I use regenerative tuning with Radio Shop Variometers."

(*Signed*) HALL BERRINGER.

E. J. Cunningham

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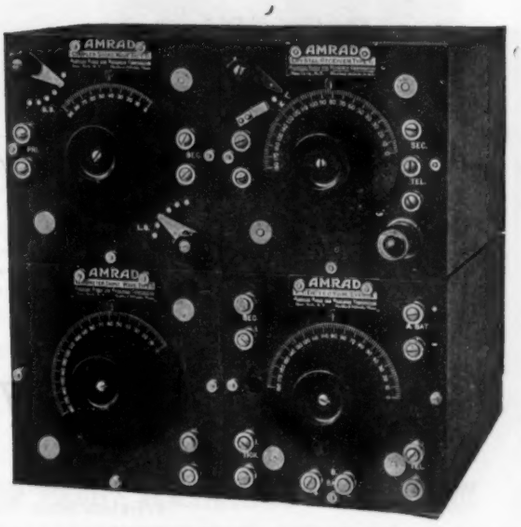

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Includes a group of complete Receiving Units designed solely for the wireless experimenter to meet his need as he progresses to the topmost pinnacle in Radio. Called the most practical, convenient and efficient standardization plan ever developed. Practical because economical—you need never discard your original apparatus as you improve your station; convenient because each Unit is uniform in design, size and finish—you avoid fussy construction work; efficient because each Unit is designed by commercial Radio experts to give maximum results, and because the final group of Units produces as fine a receiving station as can be desired.

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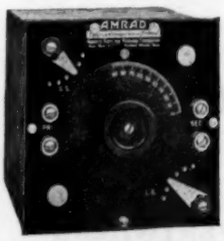
TO AMRAD GAP USERS:
Send us the type number and serial number of your gap with 10c postage and we will forward you free of charge a set of the new Amrad Leak-Proof Gaskets which insure perfect quenching and a smooth note under all conditions.



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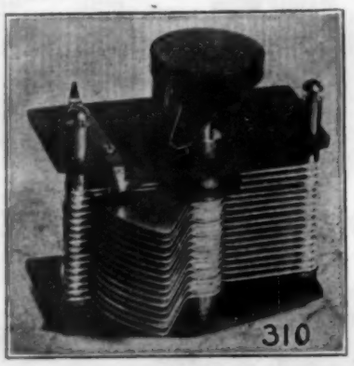

Wireless Shop Variable Condensers

Are Recognized as

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They are being used by several manufacturers of high grade equipment, by the Bureau of Standards, and by the AMATEUR who recognizes QUALITY, in all parts of this country as well as in several foreign lands.

WHY NOT MAKE THE CONDENSERS IN YOUR NEW SET "WIRELESS SHOP VARIABLES?"

You can't go wrong, as they are fully guaranteed to give satisfaction, or we will cheerfully refund your money. What more could you ask? Ask some of the other fellows how they like their "Wireless Shop Variables."

The rugged construction of these condensers and the quality of workmanship will surely please you if you want, and expect to have, only the **BEST.** Made in two styles and eleven sizes. **EVERY DETAIL RIGHT.** Aluminum plates and spacers. FORMICA Insulation.

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Include postage for one pound. Include postage for two pounds

Specify if you want brass or nickle pointer and mounting screws

Prices include knob and pointer and mounting screws. Indicating dial furnished at 75c additional.

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511 W. WASHINGTON STREET — A. J. Edgcomb — LOS ANGELES, CAL.

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The Latest Development

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For Every Radio Station

AT A

Price Within Reach of All $45

DEALERS WANTED EVERYWHERE

The Radio Magnavox is constructed under the same patents and on the same electro-dynamic principle as the Magnavox Radio Telemegafone, and will emit the same volume of sound with a slight increase of field current. Extremely satisfactory results may be obtained by the use of 2 to 4 dry cells.

THE MAGNAVOX COMPANY — Oakland, California

VOLUME II MARCH, 1921 NUMBER 8

WHO WROTE THE EDITORIAL IN THE JANUARY "RADIO NEWS"?

HAVE you read the editorial in the January issue of Mr. Gernsback's publication, "Radio News?" This is not a bit of free advertising for the publication mentioned, but the editorial is such a conglomeration of nonsense that every radio man will need to hear of it. Here it is:

RADIO BILL S4038

SENATOR POINDEXTER introduced the above bill March 8, 1920, in the Senate, and this bill was referred to the Committee on Naval Affairs.

This bill, which in many respects is harmless, and in a few instances, **if passed,** would seriously hamper us amateurs, was carefully studied by us the minute it appeared. Private advice, expert advice, as well as our own opinion, made it seem certain that this bill never had a chance to become a law in its original form.

Of course, we watched the bill carefully through all its phases, and very recent information from our Washington representatives makes it appear certain that bill will not come up for some time to come. No further hearings have been arranged for by the committee. There were hearings on this bill last spring, but since that time nothing of importance has occurred.

It has been the policy of the editor not to stir up the amateurs and make them write letters to their Senators and Representatives **unless there was actual danger** that certain bills might become law. We have always felt that if real danger existed, an S. O. S. to the amateur fraternity was in order.

We were therefore dismayed that in some quarters very zealous but misdirected efforts were converged upon the amateurs, stirring them up to no good purpose. It is the old story of yelling wolf when there is no wolf in sight. Then when the danger really does come, the appeal falls upon deaf ears. Statesmen in Washington do not like to be bothered, and stirred up every little while by busybodies, when real danger is threatening the amateurs.

The amateur fraternity can rest assured that whenever **real** danger threatens, they will be advised quickly and effectively.

Now that you have read the editorial, what do you think of it? Who is right—the man who wrote the editorial quoted above or the instigators of the plan to kill the bill before it could go any further? Let us here add that the editorial is not signed by Mr. Gernsback. Perhaps his office boy wrote it—It sounds like it! The old slogan—"In time of peace prepare for war"—applies well in this case. The bill is of such a dangerous nature that, if passed, it would seriously affect the future of amateur radio. "Pacific Radio News" published the bill in full. No other radio publication gave you a copy of it.

Please note in the editorial from the **"Radio News"** that the writer of same states that misdirected efforts were converged upon the amateurs, stirring them up to no good purpose. The misdirected efforts, to a great extent, were those employed by the publishers of QST and "Pacific Radio News"—if we understand the editorial correctly. Can these efforts rightfully be called misdirected? Don't you believe in swamping destructive legislation before it gets a handicap on us? To tell you the truth about the matter, fellow amateurs, we are of the opinion that the writer of the editorial never heard of the bill until he read it in "Pacific Radio News."

Well, at any rate, we hope that he knew of the bill. Mind you—we are NOT saying that he did NOT know of it.

. "It is the old story of yelling wolf when there is no wolf in sight"—says the editorial. It should have read as follows: "Why holler wolf when someone else has already driven the wolf away." But, on the other hand, we extend our thanks to the writer of the editorial for the last paragraph of same, which reads: "The amateur fraternity can rest assured that whenever real danger threatens, they will be advised quickly and effectively" That's just what "QST" and "Pacific Radio News" have done. We have advised you quickly and effectively, and REAL danger was in sight. But not now—the bill will never be made a law—thanks to the many of you who have done such good work in giving it the axe.

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Boston Office.....18 Boylston St. Chicago Office.....1306 Hartford Bldg. London Office....62 and 8a, The Mall, Ealing

"Pacific Radio News" is a member of the National Association of Radio Dealers.

Entered as second class matter January 22, 1920, at the Post Office at San Francisco, Cal., under the Act of March 3, 1879.

ONE-HALF KILOWATT PANEL TYPE TRANSMITTER

By O. SCHUWENDT

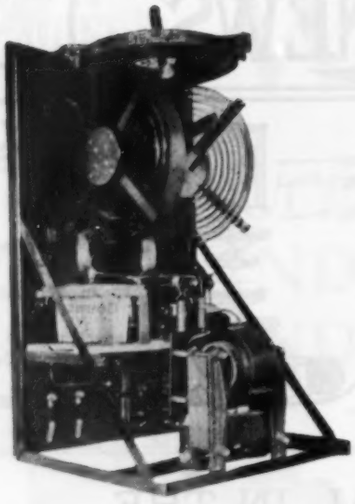


Fig. 2

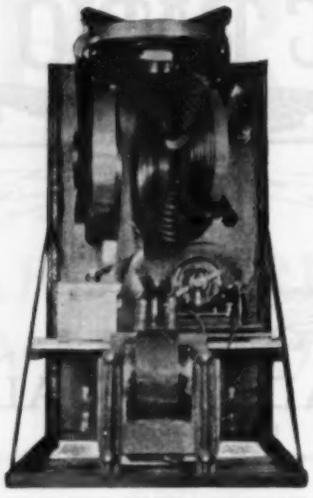


Fig. 3

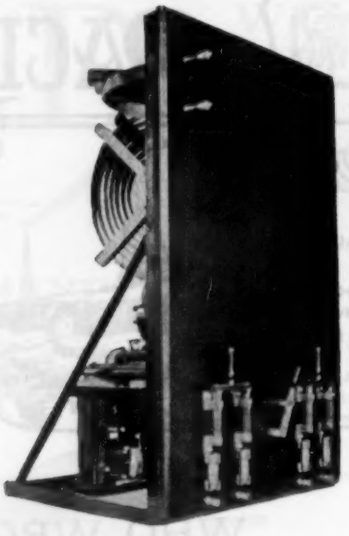


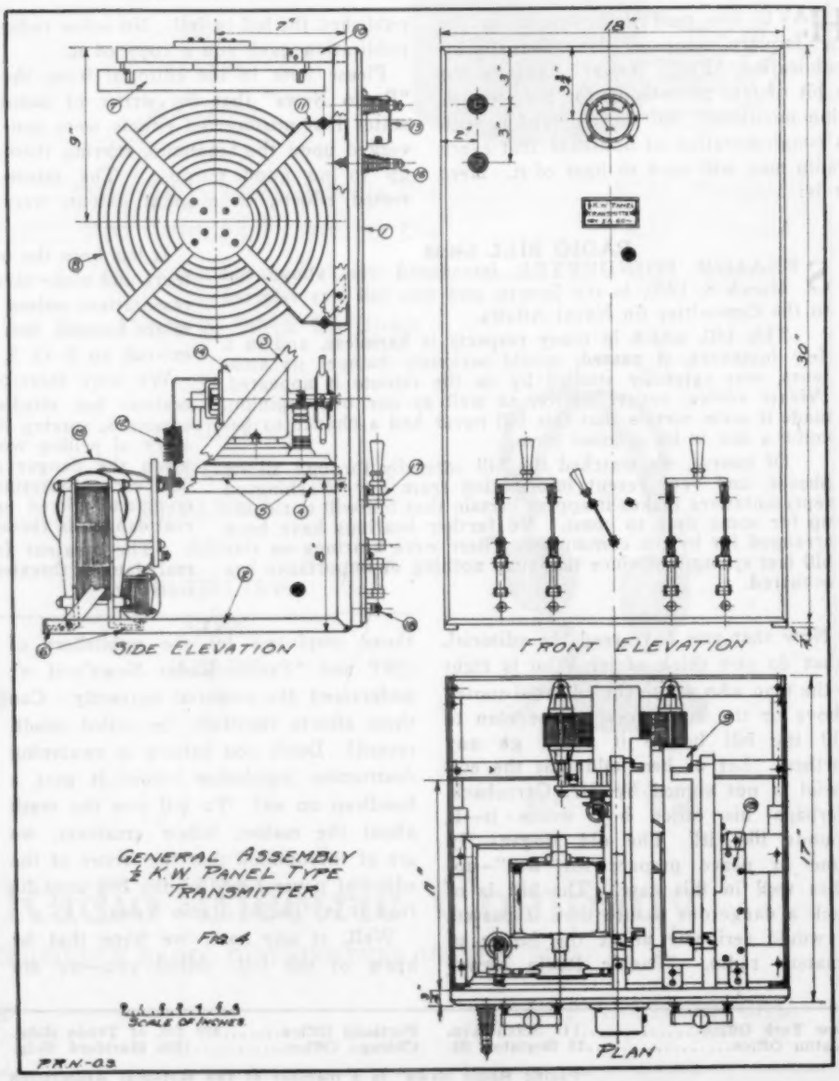
Fig. 1

(Drawings by the Author)

THE panel type transmitter to be described has actually been constructed and, although it has not been used to any great extent, it has been found to give very satisfactory service. Fig. 1 is a half-tone showing the front view of the completed set, while Fig. 2 and Fig. 3 are half-tones showing the side and back views respectively. Although definite makes and sizes of instruments are shown there is no reason why other types might not be substituted with slight changes in dimensions to conform to any difference in sizes of instruments if necessary. In the particular set constructed by the writer the following instruments were used: ½ K.W. Acme transformer, Murdock rotary gap with every other stud cut out, giving only six studs, permitting the gap to be run at high speed resulting in better quenching without raising the tone to an excessively high pitch, a Dubilier mica condenser, a home-made oscillation transformer and antenna loading inductance.

Fig. 4 is a drawing showing the general assembly of the transmitter and will serve to make clear certain points that might not readily be seen in the photographs. It will be noticed that a hot-wire ammeter is shown in the drawings which was not in place when the photograph, Fig. 1, was taken. This will fill up the blank space on the panel and make it look much neater.

With reference to Fig. 4, 15 is the Acme transformer, 14 is the Murdock rotary gap, 19 is the Dubilier condenser, 8 is the secondary and 9 is the primary of the oscillation transformer, 7 is the antenna loading inductance, while 12 is high frequency choke coils to prevent surges from the condenser from backing up into the secondary of the transformer. The fused switch on the right of the panel controls the main power line to the set. When the switch is open the panel wiring is dead. The switch on the left controls the rotary gap motor, while the switch in the center is designed to rotate between the two clips and is used to vary the power input



Published by Permission of the Secretary of the Navy

to the transformer. In case the transformer which the builder intends to use has more than two taps on the primary, more switch jaws can be added and thus all of the different powers can be obtained directly from the front of the panel without changing any wiring. The binding posts below the power switch are for connecting the power leads to the set while the other two are for connections to the key.

In the plan view the antenna leading inductance has been left out in order that the drawings would not be confusing. Wiring has been omitted from all other views. 13 is a hot-wire ammeter which can be of any make that the builder desires to use. The two connections for aerial and ground, 16, may be either in the form of composition posts as shown or large binding posts can be used to advantage.

In starting the construction of this panel set the builder should first make the panel (1) in Fig. 4. This can be of slate or Bakelite, but wood can be used just as well as no high tension leads are run directly on the panel. In the writer's case the panel was made of wood which was first painted with lamp black and turpentine and given several coats of good varnish. Each coat of varnish was rubbed down with steel wool to give a smooth finish before the next coat was applied. The last coat was rubbed down with steel wool and then with pumice stone and water until a dull finish was obtained which greatly resembles grained Bakelite. The terminals and ammeter should be put in the position indicated by the dimensions given in the drawing. No definite dimensions can be given for the location of the switches as they will vary in each case; however, care should be taken to have the terminals of the top clips 7½ inches or less from the bottom of the panel as it is intended to keep all 110-volt wiring below the shelf on which the rotary gap and condenser rest and incidentally from the high tension circuit.

The next step is to make the frame work of angle and strap iron as shown in Fig. 5. The panel supports (2) should be made first. These are made from one-inch by one-inch by one-eight inch angle iron. The right angle bend is made by making a cut with a hacksaw 45 degrees on either side of a vertical line, 17 inches from one end of the angle iron. The angle can easily be bent cold although it is better to heat it red hot before bending, which would allow the joint to be hammered together to make a neater job. Care should be taken in making the supports to be sure that the notch is cut out just the opposite in one from the other, or the piece of angle iron will be ruined for use as a support. The holes should be drilled in the places shown by the drawing and those which are marked for countersinking should be countersunk with a ⅜-inch drill.

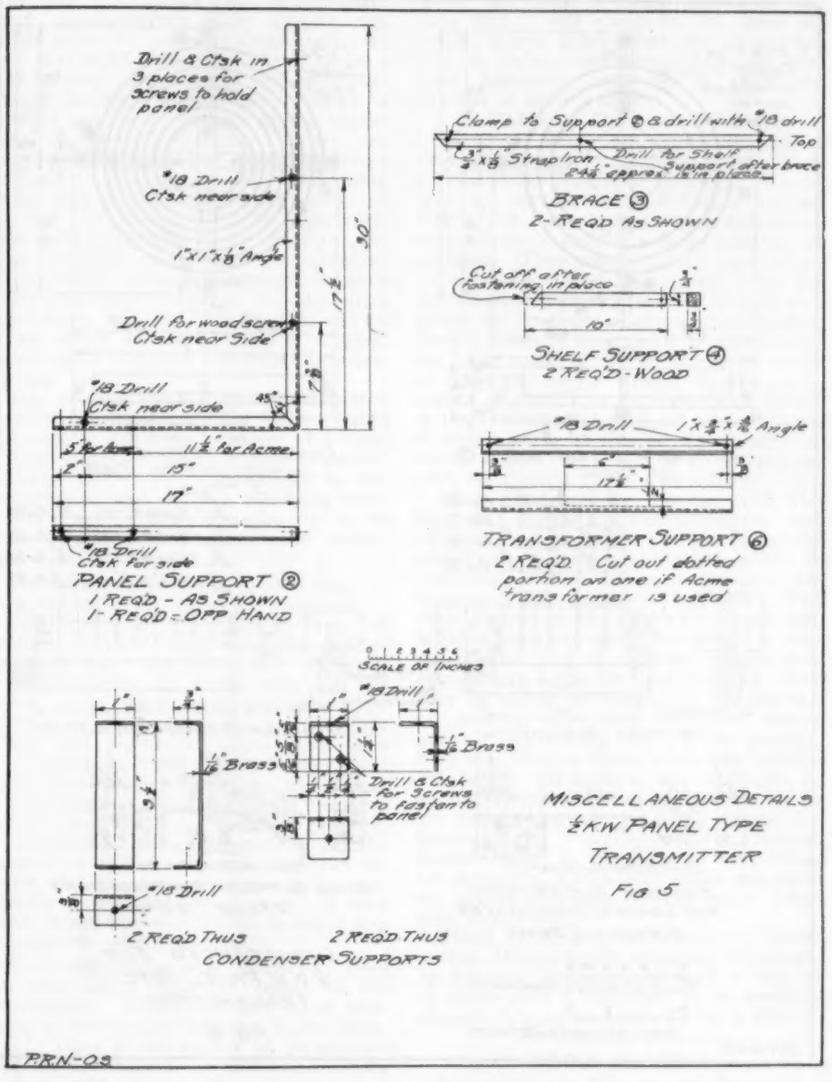
The brace (3) is very simple except for the cutting of the angles for each end. This is probably best accomplished by setting the brace approximately in place on the outside of one of the panel supports and scratching the approximate angle of each end on the surface of the iron. After the ends are cut to the correct angles the braces should be clamped in place on the panel supports and the holes drilled for the fastening screws. The brace should be fastened in place on the inside of the angle of the panel supports by means of 8/32 flat head iron machine screws. After the screws are in place they should be cut off flush with the face of the nut and the head should also be filed down until it is flush with the sides of the angles. The hole for the shelf support should be drilled after the shelf support has been fastened to the panel support and leveled up. It will be necessary to put a couple of washers on the screw between the angle and the shelf support to bring it out even with the brace. The shelf support (4) itself will need no description as it is merely a piece of wood ¾-inch square, the bevel being cut after it is fastened in place.

The transformer supports (6) are made up of ¾ by 1 inch by ⅛-inch angle iron in lengths as shown in Fig. 5. The holes drilled in each end are for fastening bolts which are countersunk on the under side of the panel supports. 8/32 machine screws are used here as on the braces. If an Acme transformer is used it will be necessary to cut out a portion ½-inch by 6 inches from the forward angle to clear the reactance coils. Holes are drilled for fastening the transformer to these angles, matching them up with the holes in the feet of the transformer. The transformer is fastened in place with iron machine screws coming up from below and with countersunk heads.

The supports for the Dubilier condenser are also shown in Fig 5. They are bent of ⅛-inch thick brass in the shapes shown in the drawing. The two small angles are screwed on to the back of the panel while the two long supports are screwed to the shelf (5), which consists of two strips of wood ¾-inch thick by 2 inches wide and 17½ inches long, screwed to the shelf supports (4).

The antenna loading inductance (7), oscillation transformer secondary (8), and primary (9), are shown in the drawing, Fig. 6. Although the antenna loading inductance is not altogether necessary, in most cases the writer would advise its use as it is useful in tuning the set. On small aerials it is almost a necessity.

The cross pieces are made of wood ¾-inch square and of the length shown in the drawing. The two pieces are set into each other to make a flush joint. The circular piece on the back of each inductance is fastened in place with two wood screws in each cross piece as can be seen in Fig. 4, serving to strengthen the unit. A novel method of suporting the copper strip is used. It consists of using small lengths of ¼-inch thick Bakelite, set edgewise, with slots cut for the strip and a step cut in each end for the

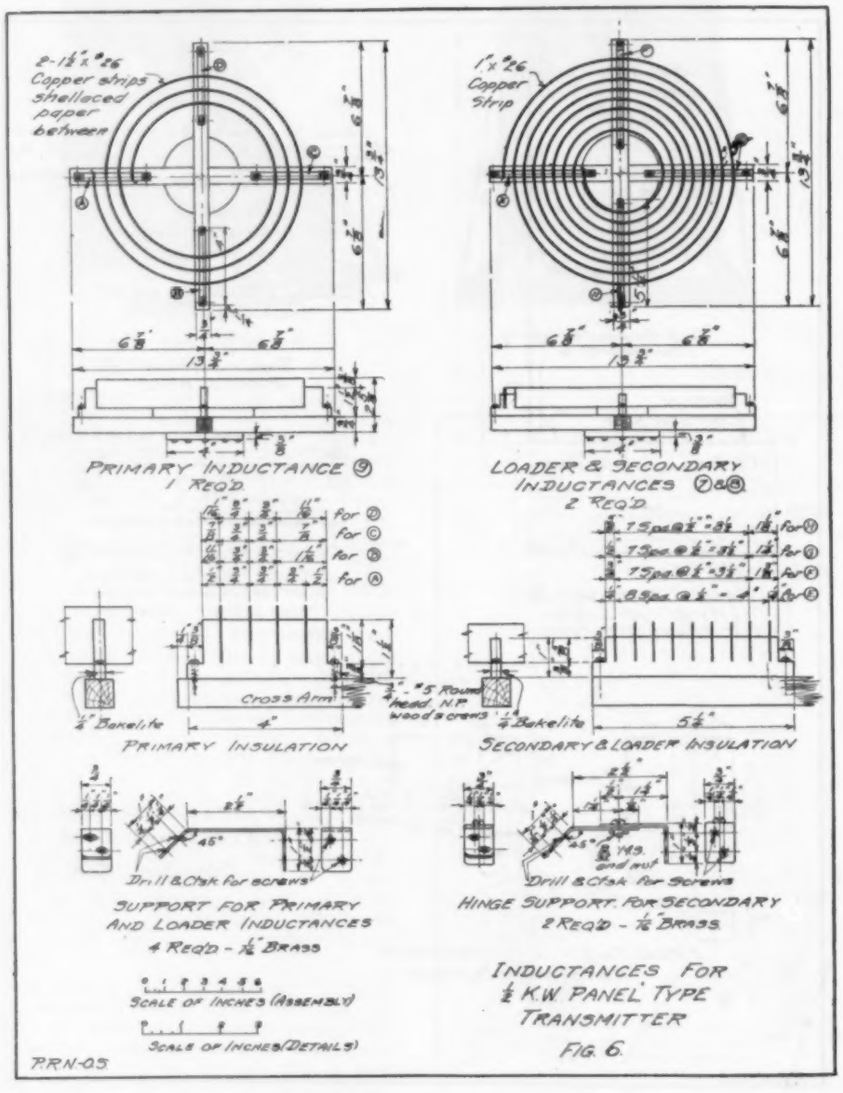


screw to hold it to the cross piece. This method represents quite a material saving over using a solid piece of Bakelite for the insulation of the copper strip and also makes a neat form of support.

For the primary the Bakelite strip is 1½-inches wide and the steps are cut as shown in the drawing. The primary is wound with a double thickness of 26 gauge copper, 1½-inches wide, with a piece of shellaced paper between the two, and the slots in the Bakelite strips should be cut just wide enough to allow the strip to be forced into them. It should be observed that the support at the beginning of the winding has four slots while the other three have only three slots each. It might be stated here that the primary will require approximately sixteen feet of ribbon in all.

The secondary and loader insulation strips are made in a somewhat similar manner to the primary except that they are only one inch wide and are longer, as can be seen by the drawings. The secondary is wound with a single thickness of 26 gauge copper strip, one-inch wide, and the slots in the Bakelite should be cut of such width that the winding can just be forced into them with the hands. It should be noticed here also that the insulation strip on which the winding starts and ends has one more slot than the other three, thus making one with nine slots and three with eight slots each, for each inductance. The secondary will require about twenty feet of copper strip and the loader will require the same amount.

The angle supports to fasten the loader and primary to the panel are identical in construction and are bent from ⅛-inch thick brass to the dimensions shown in Fig. 6. Little difficulty should be experienced in making these.



INDUCTANCES FOR ½ K.W. PANEL TYPE TRANSMITTER

FIG. 6.

The hinge or pivot supports for the secondary are made in two pieces and have a machine screw through them to act as a pivot so that the secondary may be swung through an angle to vary the coupling. The machine screws are tightened up just enough to make the hinge or pivot bind slightly when turning the secondary. This will be found to be a very effective method of coupling adjustment and the secondary will hold its adjustment indefinitely. The builder can use his ingenuity in devising a means for adjusting the coupling from the front of the panel. This may take the form of a small bevel gear fastened to the part of the lower pivot which is attached to the cross arm of the secondary. Another bevel gear, fastened on a shaft extending through the panel and having a knob attached to it, would engage with the above gear and rotation of the secondary would take place by turning the knob.

All high frequency connections are made with 26 gauge copper ribbon, one inch wide, and are soldered wherever possible. In the case of the writer's set, the primary was tuned to exactly 200 meters with a wavemeter and the closed circuit leads then soldered in place. The high frequency choke coils (12) are made of ten turns of number 10 bare copper wire, one-inch in diameter, and the ends bent over to the condenser terminals. A switch with a removable blade should be provided on the rear of the panel for shortening the ammeter when it is not in actual use.

Although the writer does not expect the above set to be exactly duplicated, he does believe that the description will give the prospective builder of a panel transmitter a number of ideas on making up a very efficient type of set.

AVALON PHONE HEARD 6000 MILES

THE radiophone of the Pac. Tel. & Tel. Co., between Avalon and Long Beach, Calif., has broken the world's record, it is believed. It is understood that several British naval ships, while lying in the harbor at Auckland, New Zealand, have repeatedly tuned in, and listened to the telephone conversation between Long Beach and Avalon, and that in most cases but little trouble was experienced in understanding everything spoken over the phone circuit. This distance is approximately 6,000 miles, all over water, it is true, but is believed to establish a new distance record for telephony. The most remarkable part of the feat is that the transmitting apparatus was only putting 100 watts into the antenna.

VALUABLE GALENA AND SILICON ORE FOUND IN CALIF.

MR. E. H. Heintze, an operator of the Western Union Telegraph Company and formerly a commercial radio man, has made an unusual find in the mountains near Needles, California. Many tons of supersensitive galena and silicon have been unearthed and made ready for the radio market.

Sample crystals were tested by the publishers of Pacific Radio News and found to be the best detecting minerals of any yet known.

Amrad Quenched Gap Relay

THE American Radio and Research Corporation has established a chain of relay stations extending from the Atlantic to the Pacific. Only stations using the Amrad Quenched Gap are included in the chain. Test messages are to be sent every Tuesday morning throughout the month of February. The first message was dispatched several weeks ago and reached the Pacific Coast without difficulty and in good time.

MR. and Mrs. Albrecht J. Scheuerlein announce the marriage of their daughter, Stephanie, to Mr. Alfred Henry Grebe, on Saturday, the eighth of January, 1921, Philadelphia, Pa.

IS AMATEUR RADIO DIGGING ITS OWN GRAVE?

Timely consideration of a matter which seems to have been given little or no attention and may foreshadow disaster for the honest experimenter.

By ARTHUR H. LYNCH

EXPERIMENTERS have proven before, during and after the war, that a very great portion of the advance made in radio engineering and operating may be traced directly back to them when its origin is sought. The accomplishments of former amateurs, in the service of the army, navy or other departments during the war, have been so completely chronicled that there would be but little use in reviewing them here in any but a very summary manner.

The vacuum tube really was more of an experimental than practical nature before its general adoption and application to wartime use by the various military forces throughout the world. Many American amateurs assisted in a great measure in making the change. To rehearse the wonders of the V. T. for the unlimited uses to which it may be applied would take volumes. Suffice it to recall that it is the little tube which makes possible the reception of signals which were inaudible before its development: it makes possible the transmission of signals or voice with comparatively small power consumption for the covering of great distances. By its use, it is possible for airplane pilots to communicate with flying fields while several miles above the earth. And so it goes, ad infinitum. This one little glass bulb with its glowing filament, metal plate and twisted gird, forming the battleground for the opposing hosts composed of myriad electrons, has proven such a wonderful aid in the promotion of human intercourse and world progress that even where we are crowded for space we cannot fail to eulogize this most wonderful achievement of the "radio brain." In tracing this invention to its source a great deal of trouble would be experienced if the desire was to give an individual credit for its evolution, or even its origin, but regardless of the actual person responsible for it, it is generally agreed that the present-day V. T. was an AMATEUR DEVELOPMENT.

And, in like manner, from the first experiment of Marconi through the ever-increasing field of usefulness of the V. T. to the Alexanderson alternator and the radio control of a crewless battleship, we find that a vast amount of constructive work has been done by the AMATEUR.

This wonderful discovery—radio—is being applied in a most intricate and systematic manner. Because of its inherent weaknesses, it is best suited for the furthering of world-wide intercommunication, when certain regulations for its employment are followed. In the early history of radio, such regulation was hardly necessary because of the small number of stations, but today, with antennae proudly standing above vast numbers of homes throughout our country, all having something to say to an antenna one, two or three thousand miles away, traffic regulation is a very serious matter.

For the framing of the rules for the governing of radio traffic, the legislators of most governments find time to take their minds from the most important affairs. Our own government is, to a very marked degree, much more lenient in the matter of Amateur Radio regulation than any of the others. In this country the all-important work, which has already been accomplished and has had for its sponsor some experimenter, is remembered when the regulations are being made. But even in this appreciative country of ours, there are certain fixed limits for this experimentation.

Radio Clubs of Great Assistance

Realizing the need of co-operating with our government in this regard, many organizations have sprung up, which strive to make amateur traffic all that it should be. They have done a vast amount of good. In the up-to-the-minute amateur station radio traffic is handled equally as well as in the higher class commercial stations. There are many conscientious and earnest workers throughout the country who are doing all in their power for the promotion of the art. They painstakingly experiment with various circuits, in an effort to produce the best; they burn the midnight oil in efforts to improve design, or they labor tediously over the writing of a paper to be read before their club, and all in an effort to make radio a cleaner, better, more efficient and more interesting art.

But, in their work, they are hampered very materially by several very distinct and equally annoying varieties of a class of individuals, commonly called "pests."

From your own observation, in the operation of your station, you have come across most of these varieties, or, to be more accurate, they have come across you.

The number of those who refuse to be governed is by no means negligible—in fact, it is surprisingly large. It is not confined to the beginner nor the youngster with the small spark coil; its ranks are not limited to those who do not know better; it is made up of a large number of those who are so wantonly selfish and pig-headed and—throw in a few names yourself, Dear Reader, and make them as strong as you like.

This flagrant disregarding of the law, and in many instances common decency, is increasing with the growth in the number of stations, though statistics indicate that the latter increase is proportionally greater than the former. A very good thing, but one which is not being propagated rapidly enough.

And, strange to say, there has been but very slight objection raised by the government. Does that fact mean anything to the deeper thinking Radio Amateur? Does it not appear to be strange that the law may be so unceremoniously broken, with no penalties being meted out to the breakers? Is the Radio Service of the Department of Commerce going to go on paying no attention to those amateurs who take delight in interfering not only with the traffic of other amateurs, but also with commercial and even government communication?

Is the Day of Reckoning Coming?

It is quite unlikely that this repose, if that is the way you would care to have it classified, will continue indefinitely. It is as nearly certain a fact as that you are alive, that some of these fine days—or bad days—there is going to be a show down, and like the day of judgment, we know not when it will arrive.

The reason Amateur Radio has been given consideration in this country is because it is recognized as a lively source for the promotion of the art, not because it happens to be somebody's hobby. When the amount of work done for the betterment of the science is approached by the amount of damage done the same science, the experimenting is going to be cut out. Our government has not been backward, in the past, in the enforcing of the greater part of its laws, and there is every reason to believe that it will clamp the lid down on Radio, unless some steps are taken rapidly to reduce the utter disregard and even contempt with which they are greeted in some quarters.

Is Radio on Trial for Its Life?

It would seem so. Correspondence, via the ether, if that is the medium which carries radiotelegraphic messages, is subject to eavesdropping. Those entries which you have in your own log-books may be duplicated in a large number of stations. They may even be part of an official and secret log being kept by government men, whose duty it is to run down the breakers of the communication laws. What is to prevent identical copies being made at the various navy yards of these and similar cases? By the application of the "Law of Averages," which is the fundamental basis of all just laws, it would seem as though Radio may be taken before the court and ordered to give an account of its stewardship.

Most amateurs are familiar with the fact that legislation was attempted, not so very long ago, which would have just about put a crimp in the art which is furnishing instruction and pleasure for thousands of young Americans. The main factors in the pushing of such legislation have not gone and found a nice quiet place and died there. Most certainly not! Like the government, they may be piling up their data and instead of getting after the individual transgressor and making him pay the penalty, they will bring a compilation of statistics before the law-makers, so conclusive in its statements of actual lawlessness, as to be strong enough to bring down the governmental wrath upon Amateur Radio's head, in the form of very drastic measures, which will effect not only the actual offenders, but the entire Amateur Fraternity.

There appears to be something subtle in the Department's apparent blindness. Is Amateur Radio to be such a fool as to allow such a condition to be brought about? It's up to you. Think it over.

BOOK REVIEW

Revolutionary Theories in Wireless

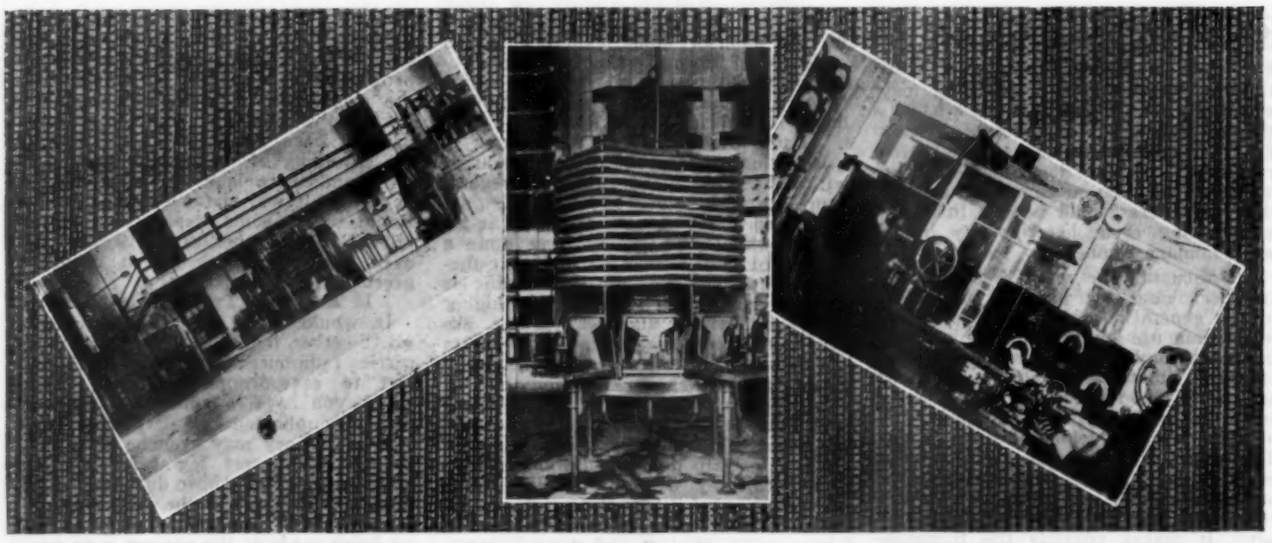
DESCRIBING in a new and heretofore unpublished manner the operation of radio stations. Present day theories disputed and treated fully in an entirely different angle. Interesting from cover to cover. 200 pages, 72 illustrations and 129 articles. Cloth bound. $2.50 per copy. Author, Frank E. Summers, Memphis, Mo.

Simple Description of Radio Telephony

PUBLISHED in blue-print form. Covers radio telephone subjects in a simple manner. Several good diagrams and many simple explanations. Prepared by F. A. Stainbrook. Published by Forest Publishing Co., Boston, Mass. Price, 50 cents per copy, postpaid. Copies can be secured from the publishers of Pacific Radio News.

THE U. S. NAVAL SIBERIAN EXPEDITION

By H. L. Rodman



THE U. S. S. "Saturn", in command of Lieutenant Commander Frank H. Luckle, U. S. Navy, put out of San Francisco in November nineteen eighteen with a heavy load of machinery, apparatus and supplies, bound for Vladivostok, Siberia, via Honolulu, for the purpose of erecting and installing a 60 K. W. arc radio station.

After a trying passage, during which some very severe weather was encountered, the "Saturn" arrived in Vladivostok harbor in January, nineteen nineteen. Ice had already formed across the lower harbor and it was necessary for an ice-breaker to preceed the "Saturn" up the Golden Horn.

Pospieloff Point, near the American Red Cross hospital on Russian Island, was selected as a base from which operations would be carried on, this being at the time the nearest accessible point to the station.

While the thermometer was dropping, the "Saturn" was maneuvered through the ice as close to shore as possible, her entire length jammed well into the ice through the channel cut by her nose, and allowed to freeze in.

The "Saturn's" cargo was then worked ashore over the ice, both man-power automobile being used to pull the sleds. The average thickness of the ice was approximately eighteen inches, but due to packing, the actual thickness of supporting ice grew to three and four feet.

The surface of the pack-ice was very rough and it was necessary to chop a trail in some places to allow the sleds to move smoothly.

A five-ton truck was lowered on the ice and towed ashore without difficulty.

The unloading of the "Saturn" was carried on in intensely cold weather, from 20 to 30 below zero, but notwithstanding this fact, our own men stood the cold better than some of the natives.

The operation of getting all material and supplies ashore on Russian Island completed, the "Saturn" departed, leavthe expedition to commence what later proved to be the real work.

Officers, enlisted men and navy yard employees totalling about forty, and this expedition was calculated to be self-sustaining for six months. A Marine guard of twelve men was added later.

The American Red Cross hospital graciously tendered the use of one of their buildings for living quarters while the expedition was operating from the Pospieloff base.

All material had now to be trucked nine miles to the station over a road partly over land and partly across the ice on Novik Bay, which nearly divides Russian Island into two separate parts.

Now and then one wheel of a heavily loaded truck would crack the ice and let water through, but by keeping the trucks moving, practically all material was transported from the base to the station over this route. The only other road leading to the station was eighteen miles long. The road across the ice cut the distance in half.

A great deal of hard work was encountered in keeping the roads clear of snow drifts. Indeed, it is doubtful if a radio station was ever before constructed where so many difficulties in the way of natural obstacles were encountered. At times the task looked almost hopeless, but the station was needed for war purposes as soon as it could be completed.

Fortunately, the personnel of the expedition had been especially selected as to physical fitness and other qualifications, and for the most part they were a stout hearted crew. There were times when they plugged on through the most discouraging adverse circumstances. For one thing, it was very difficult to keep the motors running properly, and the truck crews never knew when they would be stalled on the road and forced to walk miles in the piercing North wind.

The station itself had been started by the Russians but never completed. They had planned a high power station capable of communicating with Petrograd on one side and San Francisco on the other. Eleven towers, each 100 meters high, had been erected, and two good stone buildings completed. Many other buildings had been planned, the foundations for some having been laid. It is safe to say that had the Russians carried out their project, it would have been by far the largest radio station in the world, although it would not have been as powerful as the Annapolis, La Fayette or Nauen stations. The Telefunken system was to have been utilized, the prime movers being two 400 H. P. Deisel engines burning crude oil, one of which with the exception of a few parts, was found at the station. Even a special dock in the adjoining bay and a portable railroad had been built and laid by the Russians, all of which was utilized by the American expedition.

Three 100 meter towers forming a triangle approximately 900x700x600 feet were utilized for suspending the triangular flat-top antenna for the 60 K. W. arc. Number three hard drawn solid copper wire was used for each of the antenna wires. Five wires on 30 foot channel iron spreaders were used in each section of the triangular flat-top, the down lead being taken conveniently from the intersection where the 900 and 700 foot sides of the triangle came together.

A small antenna, similar to a ship's antenna, was also put up between two of the towers supporting the main antenna, at about 100 feet from the top, for the 12 K. W. auxiliary arc set.

A large room on the mezzanine floor of the main building was remodeled for use as arc and operating room. Other rooms on the mezzanine at the opposite end of the power house were equipped and used as officer's living quarters, another building having been given over to all other personnel for this purpose.

The main large room on the ground floor was used as a power house, as was originally planned by the Russians.

A 150 H. P. Fairbanks Morse gas engine was installed to drive a 65 K. W. generator which in turn provided current for the main arc set.

A 60 H. P. Union gas engine, driving two 12 K. W. generators was installed for the auxiliary arc set.

A still smaller set of 7½ H. P. was installed with a 5 K. W. 110-volt generator to provide lights and auxiliary power.

Fuel tanks, storing eight thousand gallons of gasoline and distillate, were erected on platforms outside the power

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WASHINGTON'S BIRTHDAY RELAY

A 30-WORD message has been received from Senator Harding, our new President-elect. The idea of the relay is to deliver this message to either the Governor of your state, mayor of your city or your Congressman or City Councilman or other city authority. State Senators or U. S. Senators are included in the list. The main idea is to deliver this message to as many City County, State and National officials as possible.

English amateurs have my permission to deliver this message direct to H. R. H. The King of England—and if they get the message—Go to it. Foreign amateurs in other countries may deliver the message and get the same credit as a local amateur, with a shade of advantage for a prize owing to distance covered. This includes Canada, Porto Rico, Mexico, Cuba, Iceland, Hawaii and as far as it will go. If there is any trouble with message not going through on the night of February 21, 1921, it will be run the next night, February 22 at the same time. A great many amateurs have their Club or Association message blanks and one of these must be used for the message to be delivered to the above authorities—reading the message to them and getting their receipt; as well as time received and delivered being plainly noted on the message blank, together with your name and address and call letter, if any. Also state from what stations you received the message. Then this receipted message must be mailed at once to W. Kirwan, Box 148, Davenport, Iowa. All your names will be listed in all the Wireless Magazines that are sufficiently interested in this relay and yourself, to publish them. There are thousands of dollars worth of prizes; from a watch to a two-step amplifier and all from the best dealers and advertisers in the business. Prizes will be held by these many companies until the prize winners are announced and they will then ship you your prize after name is published in magazine. The names of firms donating prizes will also be published shortly. You can easily win a prize and there will be lots to go around. It costs nothing to enter the contest and no matter what Club or Association you belong to—your are welcome. Thousands of amateurs belonging to the N. A. W. A., Radio League of America and numerous Radio Clubs, Y. M. C. A., Boy Scouts, Knights of Columbus, together with the many members of the A. R. R. L. will compete in a good natured National Contest for superiority in receiving and the result will no doubt discover many new efficient receiving stations that will need only a little brushing up to make them good long distance relay workers.

First thing you do when you receive this letter is to give it to your local newspaper and state approximately the number of amateurs that will be listening in, also the names and addresses of nearest sending station. Then locate the man you intend to deliver the message to and hang on his trail until you deliver it.

Time of Starting

8:10 P. M.—Eastern Standard time, February 21st.

8:10 P. M.—Pacific Standard time, February 21st.

Message will be 30 words.

14 words come from Atlantic.

14 words comes from Pacific.

2 words comes from Station 9 BY, at Rock Island, Illinois, alongside the Mississippi river. This makes it fair and equal to all the United States—but a disadvantage for the foreign stations—a point the prize committee will remember. In case of Static or other severe interference relay will be run same time night of February 22nd.

The following prizes will be awarded to the winners of the contest.

Q.S.T.	5	1 year subscriptions
Radio Topics	1	2 year subscription
Pacific Radio News	10	1 year subscriptions
Clapp-Eastham Co., Cambrige, Mass.	1 ZRF Receiver	$38.00
Karlowa Radio Corp., Rock Island, Ill.	1 CW 20 Gap	20.00
Thordarson Elec. Co., Chicago, Ill.	1 RS. ¼ KVA Trans.	30.00
Montgomery Ward Co., Chicago, Ill.	1 2-step Amplifier	28.00
Signal Mfg. Co., Menominee, Mich.	1 R37 Receiver	37.50
Wireless Mfg. Co., Canton, Ohio.	1 NSR Gap	50.00
Illinois Watch Co., Springfield, Ill.	1 Watch	50.00
Chicago Radio Lab., Chicago, Ill.	1 Zenith Tuner	65.00
Wilcox Lab., Lansing, Mich.	1 14A Gap	10.00
John Firth & Co., New York, N. Y.	5 prs. Brownlee Phones	80.00
John Firth & Co., New York, N. Y.	5 Meters (advance)	50.00
Radio Corp. of America, New York, N. Y.	6 UV 200 Bulbs	30.00
Sears Roebuck Co., Chicago, Ill.	1 Regenerative Tuner	40.00

and if a lady wins the prize she can have the choice of a good baby carriage—others still coming in.

Tresco—1 20,000 M Tuner, $10.00 Prize.

Interference

Of course, if you send unnecessarily during these times you merely hurt your local friends who may be listening in.

Stations throughout the U. S. will send information on a Q.S.T. starting February 1, each night, some by phone, C.W. and spark, about this relay and this will be a good chance for you to acquaint yourself with sending stations and tune your step up.

U. S. Government Station N. S. F.

Anacostia D. C. will send information during weeks after February 1st on 250 meters and will Q. S. T. the complete M. S. G. as soon as it is received by them 10 minutes after the hour, through 8 XK and 9 BY. These stations will use C.W. and Wireless Telephone and you will be a good listener when you get through. 8 XK will send out information starting first week of February 1st—at night both by telephone and C.W. Mr. F. Conrad of Pittsburg, Pa., is the operator who is going to try and help you—so co-operate with him.

Station 9 BY—Rock Island, Ill., will use 200 meters C.W. and phone, starting in nights of first week of February to send out information about relay. Mr. R. Karlowa is owner of station and would ask you to report his signals.

Station 9 ZN Chicago—Mr. R. H. Mathews will also send out information during February about the relay. Also all Z stations in country affiliated with the American Radio Relay League of Hartford, Connecticut.

Reason For Relay

1st. To start a keen, good natured rivalry between the many amateurs of the United States and Canada who have made some wonderful claims on receiving.

2nd. For the good of the game to give a big event once a year and give the boys who cannot do long distance work a chance to do some real long distance receiving and an incentive to better their stations if it is possible.

3rd. So that all may join in one grand big picnic once a year and enjoy some real sport as this will be the biggest wireless event of years, something to discuss and talk about for a long time.

4th. To show our new President-elect what we can do, and in event of any unfavorable future legislation—we will at least have all those we deliver message to as an ally.

5th. To stimulate interest in amateur wireless throughout the world.

Message

The 14 words coming from the Atlantic through the following sending stations will be the 1st, 3rd, 5th, etc., of the message.

The 14 words coming from the Pacific will be the 2nd, 4th, 6th, etc., of the M. S. G. and the last two words of the message will be started by 9 BY, at 9 P. M., central time on a Q.S.T.—three times only—200 meters—also by 8 XK and N.S.F. on 250 meters as soon as they get these two words from 9 B.Y. Preferably 10 minutes after the hour, at 10:10 P. M., 11:10 P. M., 12:10 P. M., etc. As much of message will be sent by these two stations as has been received. Station 9 ZN will also repeat M.S.G. three times on Q.S.T. as soon as received on 425 meters on the hour and half hour, but he will send on 200 meters in relay. This will give you a chance to check up in case of interference on 200 M. The signature of the M.S.G. will be given you here as Senator Harding, Marion, Ohio; and this will not come over wireless—just write it down now and piece the rest of the M.S.G. together when you get it.

Caution—Warning

Sending stations please have a heart for us amateurs and do not send over 10 words per minute rate, no punctuation or fancy flourishes or singing more than three times. With the class of sending stations of the A.R.R.L. in this relay this request is superfluous, but is for the benefit of the listening amateurs.

The amateur sending stations will set an example for the fellow who try to gum up any game, good or bad, and they of course will be out on this night, but as a rule, their spark is in their own neighborhood and offenders of this class are handled locally. From the amount of labor expended by all hands helping in this relay there is no sensible reason for there being any interference except wilful, and full arrangements have been made to list this kind of Q.R.M.

Don't copy M.S.G. from newspapers as purposely the Associated Press will get M.S.G. without two words. Pass this circular around—read it before your radio friends and get ready for the big event.

Sending Stations

All the best sending stations of the A.R.R.L. on the routes in use will send on this night and the A.R.R.L. should

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"6BX"—AVALON, CATALINA ISLAND

One of the most complete and up-to-date radio stations on the Pacific Coast is the one at Avalon, Cal. Radio telephone and C. W. transmission is used exclusively. One of Mr. Mott's pet hobbies is fishing. He is the author of several books and many of his writings appear in our large national publications.

The radio telephone used by 6BX was heard in Arizona and by amateurs in the Seventh District. A Montana amateur reports loud signals from 6BX. A Grebe long wave receiver and another two step amplifier will be installed in the near future.

Photo by Reyes, Avalon, Catalina Island.

THE photograph of Mr. Mott's station—6BX—at Avalon, Catalina Island, California, shows his apparatus so clearly that but little explanation is necessary. At the extreme right is his especially designed and constructed tube transmitter, in which he uses three tubes. He derives his power from the city current—110 volts—through a special transformer, and gets the exceedingly **good** results of from 1½ to 2 amperes in the antenna. The one trouble that he is experiencing is caused by the fluctuating of the city power, that he compelled him to have built three especial circuit breakers in order to safeguard the tubes. The receiver is the Grebe, short-wave regenerative model, used in connection with an Audiotron detector set, and a two-step Grebe amplifier above it. The sending key is just behind the Baldwin phones on the table. Mr. Mott also employs a 9-plate tuning condenser between the receiver and the detector. He reports most satisfactory results, this arrangement permitting of **very** sharp tuning.

He has been reported as QSA from stations in the Seventh and Fifth Districts. Three wave lengths are arranged for—200, 220 and 235—all very sharp-drawn. So sharp indeed is his transmitting wave that he asks those who would listen for him to tune **exactly** on 200 meters, as if this is not done listeners' sets will not oscillate and a "mush" sound will result, whereas if they are tuned correctly they will hear a very fine, resonant note, easily readable through almost any QRM.

Mr. Mott is installing a Grebe long-wave, regenerative receiver with another two-step amplifier in connection with it, and another set of Baldwin phones. When 6BX is in full commission it will be as up-to-the-minute a station as there is on the Coast, and he hopes to broadcast his fishing news in such a way—o' summer evenings—that listeners far and near will be interested and entertained.

FROM OCEAN TO OCEAN

By Lawrence Mott (6BX)

WHEN radio, plus land lines, work together with such cohesion and so efficiently, that at my amateur station at Avalon, Catalina Island, California, I heard—remarkably QSA—voices speaking from the S. S. "Gloucester"—out at sea off Cape Cod, the Massachusetts coast—to the Pebble Beach station of the commercial wireless telephone between the Island and the mainland—American brains, constructive ingenuity and invention have shown the stuff of which they are made!

And furthermore—the voices of the operators assisting at the carrying out of this feat, and stationed along the line, came in to me as clearly as though they were but across the way. N. Y., Boston, etc., all the long miles to Fresno, San Francisco and then Los Angeles, were plainly audible with excellent modulation and fine tone.

On the "Gloucester" they were transmitting on 365 metres, and receiving on 410. At Pebble Beach transmitting was effected on 400 and reception on 470.

I was listening-in on my Grebe regenerative receivers, using the regulation, amateur antenna—and I needed no amplification to hear the voices on the ship on the Atlantic at all. The reason for this was, of course, that I was chiefly receiving through re-radiation from the Pebble Beach station's aerials—that are situated about a mile and a half from my own.

I am informed on the highest of radio authority that the British battleships, while lying in an Australian port—but lately—heard wireless conversation between Avalon and the mainland with great clearness—and that is a distance of more than 6000 miles!

'Nuff sed!

BRITISH TRY TO BALK WIRELESS IN CHINA

An international dispute, with Japan, England and Denmark lined up on one side, America on the other and China in the middle, has arisen over a contract granted by China to the Federal Telegraph Company, a wireless company with headquarters in San Francisco.

Big issues are at stake, including America's future commerce with China, in the opinion of American officials.

Japan and England have demanded of China the revocation of the contract, which calls for the construction of a radio plant at Shanghai. Denmark has made a separate demand to similar purport. America is seeking delay.

Officials in East

R. P. Schwerin, president of Federal Telegraph, is now in Washington. It was reported his visit had to do with the Chinese row. Hiram W. Johnson, Jr., a director of the company, is also in the East. Others prominent in the affairs of the company, which was formed in 1911 and has a service extending up and down the Pacific Coast, are T. C. Tognazzini, August Taylor and Leon Bocqueraz, all prominent in San Francisco's business and financial affairs.

Details of the dispute were brought in an Associated Press cablegram from Peking.

British Pressure

The dispatch said Premier Chun Yun-Peng, under pressure of the British legation, was seriously considering a proposal to cancel the contract of the Federal company with the ministry of com-

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THE FALL OF SAMUEL JONES

By Volney G. Mathison

(Author of "A Bungled Affair," and others.)

SAMUEL JONES has always strenuously opposed the idea of my writing an account of his Great Fall. Once, when I casually mentioned the matter to him, he most emphatically objected, averring that he didn't want to have his private business printed in a magazine and exhibited on all the newstands in the country, to be read and snickered at by the darn public. He declared that the said affair in question occurred many years ago, when, fresh from the turnip-patch and hayfield of a country farm, he was quite unsophisticated and wholly unversed in the deceiving ways of the fair sex; and he said he felt that Evelyn Campbell, the young lady in the case, made quite enough of a jackass out of him at the time, without my rubbing it in by writing a fool story about it. Hence, I was obliged to desist.

However, since just this morning I was casually informed by the radio inspector that Samuel Jones has lately departed on a big freighter, off on a six months' voyage to Madagascar with a cargo of prunes and windmills, I have resolved to take advantage of his absence to slip you the story of his Great Fall.

Once upon a time, in the dim Achaean age of the wireless game when shellbacks were greenhorns and the straight-gap roared supreme, the chunky little steam-schooner "Wapama" pulled away from a San Francisco pier, one cloudy autumn afternoon with a full list of passengers—about twenty—and a cargo of lumber. The cargo had been brought down from the Columbia River, the passengers recruited at San Francisco, and the "Wapama" was bound for San Pedro, where she would be relieved of lumber and landlubbers, alike.

As the good ship rambled out through the Golden Gate, Samuel Jones, the chief wireless operator of the vessel, settled himeslf at his operating desk, as comfortably as the cramped combined wireless cabin and sleeping room would permit, and resigned himself to the necessity of standing watch until midnight, when he would be relieved by his assistant, Jimmie Morrow. With the phones resting loosely on his tow-headed cranium, he extended a long arm and dragged out a large musty volume from beneath the old-fashioned condenser rack. Hitching his chair around a few times until he was able to wrap his long, lanky legs around the motor generator in a manner to his satisfaction, he hunted for the place in the book where he had read last.

The book, which bore the weighty title, "Thrilling Adventures Among the Red-Headed Wild-Men of Bonga Tonga, by the famous missionary-explorer, Sir Sigismund Athanasius Mugfoot," clearly held a special attraction for Samuel Jones. Scarcely six months away from the adventureless environs of a country farm, he was intensely interested in the account of the perils braved by Sir Sigismund in his invincible determination to convince the cannibals of Bonga Tonga that canned horse-meat was better for the soul than fresh man-chops.

Samuel Jones had fallen into the habit of reading aloud for the benefit of his second operator, when he came to the more thrilling passages in the book. Jimmie Morrow had long since resigned himself to this business, and customarily listened to the stirring accounts of butcheries and battles with a callous indifference. Jimmie's main ambition was to sleep as much as possible, whether on or off watch.

"By jiminy, ol' Mugfoot sure had a excitin' time of it, all right," exclaimed Samuel Jones, for the thousandth time, addressing himself to Jimmy, who lay half dozing in his bunk—a narrow, crib-like affair, just above and a little to one side of the operating desk. "Here he tells how he got shipwrecked goin' from Bonga Tonga to Kinanakaluli, an' gets captured, along with eleven more of his gang, by enemy cannibals. The savages puts 'em all in a cave, 'an the chief scoffs one every week, until ol' Mugfoot was the only one left; an' the chief wouldn't eat him because he was too darn tough an' skinny. He was tryin' to fatten him up a little, when a trader comes along an' the skipper of the trader gets the chief to swap the scraggly ol' missionary fer three drinks of rum. I reckon the chief thought he was gettin' a lot the best of the bargain at that, but, anyway, that's how Mugfoot got saved from the ol' stew-pot. That sure must'a been a great life, eh Jimmie?"

Jimmie's only comment was a grunt, as he turned his face to the wall and tried to sleep.

"By jiminy, soon's I get a couple year's time in on this job, I'm goin' to strike the chief fer a big tramp steamer, an' go all over the world, 'an see some adventures like that myself, eh Jimmie?"

"Aw, fer th' love of Mike, lay off that adventure racket, will yuh!" grumbled Jimmie, growing peevish at being thus constrained from peaceful slumber. "You'd ought'a be thinkin' about gettin' married an' settlin' down."

Now this was an unfortunate remark, as Jimmie promptly discovered, for it brought upon him a long and brilliant lecture, in which the numberless advantages and incalculable value of travel was reviewed and enthusiastically dwelt upon, while matrimony and married life in general was scathingly disparaged and condemned to perdition.

"There's nothin' like travelin' an' adventure to learn a fellow somethin'," concluded Samuel Jones, earnestly, "'an travelin' an' marryin' don't mix. Course, I don't mind talkin' to the girls an' explainin' to 'em about the set, an' all that stuff, but you don't catch me fallin' in love with 'em—none of 'em! No darn woman's goin' to drag me up to a preacher like a fish on a hook 'an spoil my c'reer with matrimony—no sirree—!"

Just at this moment, the chief wireless operator's dissertation was interrupted by a distant silvery laugh, a sound of light footsteps tripping across the deck, and the appearance of a picture of feminine beauty in the doorway.

"O-o-o-o-h! This is the wireless, isn't it?" trilled the fair one, resting a daintily manicured hand upon the door. "Please, may I come in?"

"Yes, sure, come right in an' have a seat," exclaimed Samuel Jones, gallantly, arising and offering his chair to the charming visitor. Six months of wireless operating and explaining radio to lady passengers unnumbered had rather thoroughly broken Samuel Jones of his original countrified shyness.

With a sweet "Thank you," Evelyn Campbell stepped into the radio cabin and accepted the chief wireless operator's chair. As she did so, Samuel Jones could not help noticing that she was attractive—charmingly, seductively, irresistably attractive. There had been many fair young visitors in the radio shack at different times, but the little beauty who now sat in the chief wireless operator's chair and smiled so alluringly at him, certainly outclassed anything yet. Samuel Jones was a trifle embarrassed.

"So this is a wireless, and you are a real wireless man, aren't you?" she bubbled with a glance of her glorious eyes that shot through Samuel Jones like a thousand arrows and made his heart palpitate strangly. "I'm just awfully interested in radio—please tell me about it, won't you?"

This was the chief wireless operator's cue; he promptly plunged into an explanation of wireless telegraphy that covered everything from motor-generator to buzzer-tester; appended with a history of the art, beginning with the discovery by Hertz of wiggly wave-motions, and winding up with the latest dope concerning a fellow who was dreaming about a queer thing that he called an audion.

"You must be just wonderful to know so much," rippled Evelyn Campbell, with another entrancing smile. "It must have taken you years and years to learn it all, didn't it, Mr. Jones?"

"Oh, I don't know; it only takes about four or five years, if a fellow's got any brains a'tall," answered Samuel Jones, modestly, as he put on the phones and proceeded to impress his fair visitor by throwing a lot of switches in and out, accompanied by a skillful twirling of miscellaneous knobs and dials on the antiquated tuner.

"Of course, the wireless game's gettin' a little harder all the time," he added, slamming up the plunger of the rickety underload-breaker and frowning thoughtfully at the storage-battery voltmeter; "they're gettin' a good many of them new quenched sets an' arc outfits out on the ships nowadays, an' a fellow's got to study a lot to keep up to date. But it don't take most operators more'n eight or nine years to learn to handle even them newest sets—"

The chief wireless operator paused as the "Wapama" slamming her bluff bows into the heavy seas running on the bar, began to roll and pitch, sickeningly.

"Oh, dear, I'm getting seasick," gasped Evelyn Campbell, rising. "I'd better go."

Expressing his sincere sympathy, Samuel Jones solicitiously assisted the fair maiden to her stateroom.

Returning to the radio shack, the chief

wireless operator reseated himself, hung the phones over one ear, and took up the book of adventure. Locating the place where he had been interrupted, he began to read. He went scarcely a page, however, when he realized that the book had somehow become strangely stale and flat. Evelyn Campbell seemed to smile alluringly at him from between every line; his attention was distracted by unbidden thoughts of her shapely figure, her dainty hands, her seductively glorious eyes. With a sigh, Samuel Jones closed the book and shoved it back underneath the condenser rack. As he did so, he heard something that sounded suspiciously like a snicker. He glanced up sharply at Jimmie Morrow, who was still lying in his bunk, but the second operator apparently was dozing peacefully as usual.

Clamping down his phones, the chief wireless operator adjusted the carborundum detector and listened in. He heard the usual crash of traffic and he essayed to enter upon his favorite pastime: to take note of some particular signal and read it through all interference by sheer concentration—and failed. Wireless had become as stale and dead as the book of Bonga Tonga.

Samuel Jones had fallen. His fall had been sudden, headlong, and complete. He was subconsciously aware of the fact that he had fallen a victim to Cupid, but he firmly refused to admit any such thing—not even to himself.

The retarding wind that the "Wapama" met at the Golden Gate increased in strength and was attended by a choppy swell, in which the steam-schooner tossed and pitched wearily all through the night. Morning found her diving wildly into towering seas and barely holding her own with the gale.

The storm continued through the day. Evelyn Campbell was very seasick, and Samuel Jones worried a good deal about her. The chief wireless operator, recognizing his sympathetic anxiety for the fair traveler as something wholly unprecedented and altogether unbefitting one destined to a life of adventure on the high seas, strove with a vague uneasiness to stifle his thoughts by turning his attention to other things. But with poor success, however.

Toward nightfall the gale suddenly moderated somewhat. Samuel Jones happened around to Evelyn Campbell's stateroom, for the simple reason that he couldn't keep away; although he probably would have indignantly denied it, had anybody so insinuated. The charming passenger was not feeling much better, despite the abatement of the storm, but she did indicate a desire to get out on the upper deck and rest in a steamer-chair. Samuel Jones eagerly, yet rather diffidently, assisted her to a comfortable chair, which he placed behind a stack of life-rafts near the lee rail, where she would be sheltered from the wind. As he awkwardly proceeded to wrap her up in a warm deck blanket, to protect her from the chilly air, his hand touched hers once, and he experienced a wild, sharp thrill that left him quite confused afterward.

"It's awfully good of you to be so nice to me," said Evelyn Campbell, sweetly, when the chief wireless operator, having made her as snug and comfortable as he knew how, stood wavering, uncertain whether to go away or to hang around; "and, if you're not too busy, won't you stay and talk to me a little while, please?"

Samuel Jones was not too busy, and he stayed. Half an hour later, the "Wapama" had occasion to alter her course a few points, bringing the heavy sea directly abeam. The result was immediately noticeable. As the old ship laid over on her very beam ends, from somewhere below there arose a terrific crashing, slam-banging of upsetting cans and buckets, followed by great streams of heartfelt profanity from the engine-room gang.

"Oh, oh," moaned the seasick beauty, as the vessel lunged, gaspingly and sickeningly. "If I had to endure such misery very long, I would jump right overboard."

"I'll go an' get you a glass of salt water an' a hunk'a stale bread," said Samuel Jones, anxiously arising at once. "That's good for seasick people."

He hastened down a companion-way to the galley, which was two decks below. As he filled a tumbler with water and stirred a little salt into it, the "Wapama" was unexpectedly caught up by a succession of unusually high and sharp-crested waves, in which she rolled more wildly than ever. Thinking to himself that this would make his fair protege even sicker than she was, the chief wireless operator glanced out through a galley port-hole at the heaving waters, hardly visible in the increasing darkness; and, just as he looked, he saw something—a dark huddled object, a brief flash of white—fall by the open port and vanish noiselessly into the sea.

For a moment, Samuel Jones stood bewildered. Then his brain reacted to the testimony of his eyes with a terrifying recollection of Evelyn Campbell's threat to end her seasickness—to commit suicide. What he had seen had fallen from directly above—from the very place on the upper deck where he had left Evelyn in her steamer-chair. His imagination swiftly reconstructed what he had seen falling—the little dark figure, the flash of white petticoats! And, as this awful conviction laid hold of Samuel Jones with an icy grip, with it there came like a crash of lightning the burning realization that he loved Evelyn Campbell—that he loved her deeply, intensely, mightily. It was a crystallization of feeling under stress of catastrophe, and in its dazzling revelation Samuel Jones was electrified to action. Throwing aside the tumbler of water, he sprang up the companion-way to the poop deck.

"She's overboard!" he shouted to the officer on the bridge. "She's overboard! Stop the ship! Quick! Stop her! Stop her!" His breaking voice rose in wild anguish above the thumping of the engines and the churning of the propeller.

Almost instantly, the engine-telegraph clanged sharply; with a squeal and a jerk the throbbing pistons came to a sudden stop. People seemed to spring from nowhere from out the darkness; anxious questions were hurled back and forth; up on the pilot house the ship's search-light sputtered into action. Coming out of his cabin, the captain of the "Wapama" saw the crowd gathered on the poop and he hastened aft. Incoherently, Samuel Jones began to tell of what he had seen go by the galley port-hole. Before he could finish, a loud guffaw broke in on his stumbling words. It was a rude, coarse laugh, altogether out of keeping with the tense and dramatic situation. Everybody turned. Under a deck light stood a brawny wiper, clad in greasy overalls. In his hands was a big chunk of waste, with which he was wiping lubricating oil from his face and forearms.

"Shure, an I knows what yiz saen, fur I wuz here an' haeved it ouver mesilf!" he asserted, in his strong brogue. "Didn' yiz hear th' ile cans upsittin' whin th' ould gurrl took that beam-inder a bit ago? I jist claened up the worst av th' dirthy mess an' brung up th' swabbins. 'Twas a sack av greasy rags yiz saen chicked ouver th' side, an' naught ilse, begorrah!"

Somehow, Samuel Jones managed to escape from the crowd. Going up the second companion-way to the upper deck, he went behind the stack of life-rafts to the place where he had left Evelyn Campbell. He found her just as he had left her, snuggled warmly in the blanket he had put around her. She was fast asleep.

Of course, Samuel Jones suffered a severe reprimand from the captain, and all the ship made him a victim of merciless jibes. He bore it all, however, without flinching. He didn't really care. The incident, absurd as it was, had brought him conscious realization that he was deeply enamored of Evelyn Campbell; thereafter nothing else mattered. From that time on to the end of the voyage he hovered over his fair lady with a tender solicitude that seemed blissful and sublime to him; although it was ludicrously funny to everybody else. He attended to her every trifling wish that it was in his power to gratify, he stole fruits and delicacies from the ship's ice-box for her, he bribed indifferent stewards to prepare appetizing broths and tempting salads—and the stewards saw to it that his bribes were substantial.

As he had no time to sleep, he stood his watches in a comatose condition, in which he dreamed of matrimonial blisses and pictured himself living in a second Paradise with his Eve. In his waking moments, he thumbed a home-builder's catalogue that he had unearthed somewhere; or pondered on the rather knotty problem how he was going to feed his fair lady all the bacon and beefsteak she wanted; how he was going to furnish her with expensive silk stockings and, er—other needful things; and how, at the same time, he was going to pay installments on a four or five thousand dollar bungalow for her to dwell in—all on his salary of thirty-seven dollars and fifty cents a month. (Remember, dear reader, this was not 1921.) Although it hardly seemed workable in figures, Samuel Jones knew that, according to the service regulations of the wireless company, he soon would be entitled to an increase in salary of two dollars and fifty cents a month; which would help some, anyway.

The heavy weather stayed on all through the trip and Evelyn Campbell (purposely perhaps) remained more or less seasick. Samuel Jones was at her side as much of the time as possible, stoically indifferent to the open ridicule of the ship's company and the caustic comments of the captain.

The fourth night out, the much-delayed "Wapama" rounded Point Arguello and entered the smooth water of the Santa Barbara Channel. Evelyn Campbell became well immediately. In the morning, when the little steamer made fast at the San Pedro wharf, the fair beauty was almost the first one down the gangway.

Samuel Jones was half way through the laborious process of changing into his "shore clothes," when he chanced to look out through his cabin window and saw her going. Frantically, he hunted

(Continued on page 264)

RADIO DEVELOPMENT

THE NEW MAGNAVOX

ALONG with the increased popularity of the small radiophone set has come an increased demand for some sort of device which would eliminate the customary headphones and enable the received voice or music to be heard by many people at the same time. Many devices of this sort have been available, but have not been any too satisfactory because the volume of sound which could be given off was limited by the construction of the receiver used. Of what use is great amplification if the receiver or loud speaker will give torth volume up to a certain point, and then no matter how much the input is increased no louder signals be heard?

The electromagnetic type of receiver has that disadvantage—its final output of sound is limited by very definite mechanical and electrical proportions. If the input is large the diaphragm is pulled down so far that it hits the pole pieces, if the diaphragm is placed far enough away from the pole pieces, so that it cannot hit them, then the action of the magnetic flux is so reduced that very weak action takes place. Again in the electromagnetic receiver the input is used in making greater or less the magnetic flux and acts only indirectly, in that way, on the diaphragm.

A type of receiver, electro DYNAMIC in design has been invented for some time and shows quite different characteristics in its action on signals. The commercial form of this receiver is known as the Magnavox Radio Telemegafone and is very interesting in its design and operation.

The electrodynamic receiver is essentially built along the lines of a motor, except that the armature does not rotate but merely imparts its motion to a diaphragm directly. The armature is a small coil of fine wire inserted directly in a very strong magnetic field, being perfectly free to move up and down with nothing to hinder except for the elastic limit of the diaphragm. There is not the slightest action on the diaphragm except when a pulsating current is passing through the little coil, no magnetic pull, and the diaphragm is made of a non-magnetic substance. When a pulsating current is passed through the little coil, it tends to jump in or out of the magnetic field according to the direction of the current in the little coil.

Of course, then there are no limits to the volume of sound to be produced except for the input and the capacity of the little coil. If the coil be made of such wire that it cannot burn out, the diaphragm can be broken or shattered by the power developed. In practice this never happens for very few amplifiers can deliver enough modulated current to cause such an accident.

The volume of sound emitted is DIRECTLY proportional to the amount of input. Thus when the telemegafone is attached to a power amplifier, a volume of sound is produced from the ordinary human voice, using a hand transmitter, such as has been heard under the most favorable conditions for several miles overland and from over six thousand feet from an aeroplane flying overhead.

This type of apparatus is necessarily much more expensive to construct than the ordinary telephone receiver, but of course will give far greater volume of sound than it could be possible for any other type of receiver to emit.

It has one great field in the radio game—that of being used in a radio station with a one-or two-or more stage

Photograph courtesy of The Magnavox Company.

amplifier to broadcast the received signals throughout the room or building in which the radio station is erected. It really puts the radiophone on a par with the wire phone in that it allows signals to come in with such volume that a practical calling system may be installed and a continuous watch with head receivers made unnecessary.

The New RADIO MAGNAVOX recently announced by the Magnavox Company of Oakland, California, is of especial interest to radio enthusiasts because of the fact that its price is such that it can now be used by a great many stations which otherwise could not be the possessors of such an instrument. The internal constants and constructional details are somewhat different from its bigger brother the Radio Telemegafone, and yet the emitted volume with a given input remains the same. The only difference which could be noticed is a small change in field current, the new instrument taking a very little more in the field than the other types. The new instrument is made under the same patents as the radio telemegafone.

Good signals will be had when the field is excited by dry cells delivering from 2 to 4 volts, although maximum results will be obtained with 6 volts. This is the voltage at which saturation takes place.

MOORHEAD REPRESENTS DE FOREST CO. IN WEST

It was announced yesterday that the De Forest Telephone and Telegraph Company of New York has contracted with the Moorhead Laboratories, as its Western representative, the contract entailing the taking over by the Moorhead Laboratories of the business of Lee De Forest, Inc., San Francisco, manufacturers of radio telephone apparatus.—S. F. "Examiner."

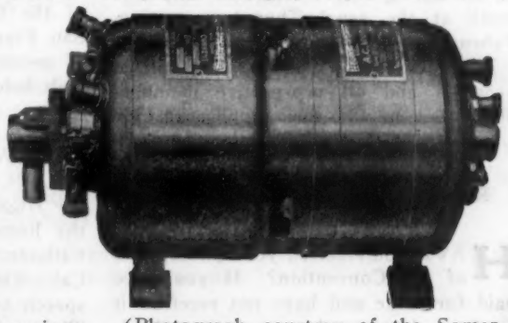
NEW MANUFACTURER OF RADIO APPARATUS

MR. H. Malarin, formerly Radio Inspector for the Radio Corporation of America in San Francisco, has joined Mr. E. L. McDonald in his manufacturing enterprise. The newly formed Company has placed several unique pieces of radio apparatus on the market. A cage-wound filament rheostat, variable bridging condenser and a filament protective device for vacuum tubes are the first instruments manufactured by the new concern. Mr. McDonald is well-known in the local radio fraternity, being formerly connected with the Navy Radio Service at the Union Iron Works.

A NEW GENERATOR FOR PLATE CURRENT SUPPLY

Before purchasing your radio telephone the source of high voltage D. C. should be decided upon. In isolated districts, where the burning out of rectifier tubes, used with C. W. power transformers, would be of major consideration, the use of reliable Motor-Generator outfits is to be recommended, even though the first cost is slightly higher.

The type of Motor-Generator shown, was designed for radio work, and is furnished as standard equipment by one of the most prominent makers of Radiophones. The small and medium sizes have ball-bearings and single, direct coupled shafts, assuring maximum efficiency. They are of moderate weight, rugged construction and built of best material. Motors are, 110 V, S. P. 60 Cycle, A. C. Wattages, 50-1000, and Voltages, 350, 500 and 1000.



(Photograph courtesy of the Somerville Radio Lab.)

6EA IS HEARD IN NEW JERSEY, 6ZR IN PENNSYLVANIA

TWO NEW RECORDS FOR PACIFIC COAST AMATEURS

ANOTHER long distant amateur record has been made. Station 6EA in Los Angeles, California, has been heard by Mr. H. D. Selvage, (2KF), Irvington, N. J. The following letters will prove to our readers that the signals were received:

Irvington, N. J.,
January 17, 1921.

Pacific Radio News,
50 Main Street,
San Francisco, Cal.

Dear Sirs:

By the time you receive this letter I suppose you have heard the glad tidings re: the remarkable feat of long distance reception. On the morning of January 4th, 2:55 a. m. E.S.T. I heard 6EA calling 6GF and 6GO so I wrote to him (Mr. Seefred) for a verification of same and he co-oberates my long distance feat by telling me that the time, calls called, and wave-length compare exactly in every respect. You can get in touch with Mr. Seefred and judge for yourself the remarkable feat which has been accomplished.

On the above mentioned date I also heard 6GO and wrote to him and he verifies my statement in regard to letters called, wave-length in meters and time.

Should you want to publish letters in "Pacific Radio News" at some future date please advise me. I have the letters here in my file.

Yours truly,
H. D. SELVAGE,
45 Durand Place,
2KF Irvington, N. J.

Berringer Heard by 8FQ

—

Only one step of amplification used

—

6ZR, formerly 6BJ, of Burlingame, Cal., was heard by Mr. F. Baumgarten, 8FQ, in Pittsburgh, Pa., January 16, at 3 a. m.

6XW's phone set at the Presidio was heard 750 miles at sea.

The call letters of Mr. Berringer's station have been changed to 6ZR and a special license has been granted him by the Department of Commerce. The transmitting wave-length is 350 meters.

343 So. Fremont Ave.,
Los Angeles, Calif.
January 23, 1921.

Editor: "Pacific Radio News",
50 Main St., San Francisco, Cal.

Dear Sir:

I am in receipt of a letter from an East Coast amateur stating he had heard my station 6EA. A copy of the letter is as follows:

Irvington, N. J., January 4, 1921.
Mr. H. C. Seefred,
Los Angeles, Cal.

Dear Sir:

I am writing to you this day to see if I can attain a verification of extreme long distance on 200 meters, this morning at 2:55 Eastern Standard Time. I am quite positive I heard you calling 6GF or 6GO and 6AK. Almost every night I hear 1st, 2nd, 3rd, 4th, 5th, 8th and nines. I am using a detector and 3-stages of amplification. Please answer by return mail.

(Signed) Yours truly,
H. D. Selvage,
45 Durand Place,
2KF Irvington, N. J.

This letter was verified by my log book. I also told him to send the good news to "PRN" and "QST".

The power input of my transmitter now is 7.65 watts as tested by a standard watt-meter used daily by the Southern California Edison Company. The radiation is 4¼ amps. as tested by a Westinghouse thermocoupled meter.

Very truly yours,
Radio 6EA H. C. Seefred.

RADIO CLUB NEWS

SAN FRANCISCO RADIO CLUB TO HOLD "STAG PARTY"

ON Thursday evening, February 17, the San Francisco Radio Club will hold the first of a series of quarterly socials. Entertainment, refreshments, music and lectures will be the important parts of the program. An open invitation to attend is extended to all radio men in and around San Francisco.

New practice tables are in the course of construction and competitive tests will be held monthly. Sergeants Lufkin and Tavers, the "Radio Telephone Entertainers" from the Presidio, delivered an interesting address on radio telephone work at the usual Thursday meeting, February 10th.

The membership campaign is still in progress and all prospective members are urged to file their application for admission at the earliest date.

RADIO CONVENTION PHOTOGRAPHS

HAVE you received your photograph of the Convention? If you have paid for same and have not received it to date, please send your name and address to the Secretary of the San Francisco Radio Club and steps will be taken to have the photograph forwarded to you.

BAY COUNTIES CLUB TO PUBLISH PAPER

"BCRC" is the title of an eight-page publication that will be issued monthly by the Bay Counties Radio Club. Copies will be mailed to members without cost. Club news, current topics, discussions and other matter of interest to the amateur will go far towards making the paper one of much interest.

Mr. H. Rathbun, Chief Radio Engineer of the Colin B. Kennedy Company of San Francisco, spoke on the betterment of receiving sets at the meeting of the club held on February 4th.

ON Wednesday evening, January 19, 1921, a special meeting of the University High School Radio Club was called at the home of the president, Russell E. Calhoun. 2436 Dwight Way, Berkeley, Cal. The feature of the meeting was a speech by radiophone given by Sergeant Tavers, 6XW, of the Signal Corps Radio School at the Presidio, San Francisco. The subject of the speech was the construction and operation of a radiophone outfit. The speech was received with one auditron, and with the aid of a loud speaking horn could be heard at a distance of from 50 to 60 feet from the instruments. The voice was very clear and could be heard above all ordinary conversation.

Other numbers on the program of the meeting were a talk by Justin Toles, 6CF, on his humorous experiences in radio before the war, and also a demonstration of the Tesla coil.

The University High School Radio Club was formed about six months ago at the University High School, Oakland. The officers of the club are: President, Russell Calhoun, 6FZ; secretary, Horace R. Greer, 6TI; radio engineer and chief operator, Charles Wilson, 6LE; honorary treasurer, D. McCay (faculty).

All future proceedings of the club will be made known through these columns.

Don't throw your copy away when you finish reading it. Show it to your radio friend and ask him to subscribe.

THE SECOND ATTEMPT TO REACH HAWAII

IN the February issue of "Pacific Radio News" we informed our readers of the second Hawaiian transmitting contest and asked for four additional participants, as four had previously expressed their desire to enter. In response to this request we received a mass of telegrams, radiograms, letters by special delivery mail and telephone requests to enter various stations on the Pacific Coast. Mr. Mulrony requested that no more than four stations be entered for each of the two nights of the test, and for this reason it was necessary for us to select the four best stations. The following were selected for the night of February 5th: 6ZE, 6ZR, 6EA and 6ZK. For the night of February 6th the following were selected: 7DA, 7BJ, 6PQ and 6JI. These stations were selected by a committee of four well known local radio men. The location of the stations in some cases was given particular stress, as it was our desire to "shoot" from all four corners.

We desire to congratulate the contestants on the skillful manner in which the test was conducted, and we again have to advise you that the test was not a success. Here is what Mr. T. Hall of Honolulu says in a wire received just as we go to press:

"Signals not readable Q. R. N. Most foul." Signed Hall.

This message leads us to believe that signals were heard on the short waves, but were not readable on account of the heavy static. We will await word from Mr. Mulrony and several Honolulu amateurs who were listening-in on the particular nights and publish further information in our next issue.

In the meantime we are arranging for an "elimination contest" with a vessel at sea. The purpose of the new contest is to give every Pacific Coast amateur a chance to be heard. Stations will send each night for a period of seven nights and the operators on several merchant ships will listen-in for you. Amateur signals were heard 300 miles east of Honolulu by the S. S. "Hollywood." 7YS was reported heard QSA.

Send us your applications for the new contest and look for full details in the April number of "Pacific Radio News."

RADIO TELEPHONE SHOP HOLDS PRIZE CONTEST

THE first of a series of prize contests ever held by a Pacific Coast radio manufacturer is now in progress. A radio telephone has been installed in the Radio Telephone Shop of San Francisco. It is in operation every Tuesday and Friday evening at 8 p. m. The wavelength used is exactly 220 meters. The call is 6UV. Prizes will be awarded to those hearing the telephone at the greatest distance from San Francisco. C. W. telegraph signals will also be transmitted and prizes awarded to those hearing it at the greatest distance. News items transmitted by voice and C. W. will be the procedure. The conditions of the contest will be announced by radio several minutes before the contest is made effective.

SIXTH DISTRICT AMATEUR STATIONS—Continued.

6AJA	C. Simpkins		Napa, Cal.
6AJB	J. Kaufman	803 West Oak St.	Stockton, Cal.
6AJC	D. L. Hersch	1031 S. Manhattan Place	Los Angeles
6AJD	L. Hewitt	135 West Willow St.	Stockton, Cal.
6AJE	C. D. Elfving	3344 McHenry Ave.	Modesto, Cal.
6AJF	F. C. Jones	1822 Hearst Ave.	Berkeley, Cal.
6AJG	J. H. Doig	2133 Columbia St.	San Diego, Cal.
6AJH	L. Picker		San Ysidro, Cal.
6AJI	W. Terrberry	676 Apgar St.	Oakland, Cal.
6AJJ	H. C. MacQuarrie	1115 Taylor St.	San Francisco.
6AJK	H. C. Crabtree	660 West Hadley St.	Whittier, Cal.
6AJL	G. Bergstrom	616 Twentieth St.	Ogden, Utah.
6AJM	F. L. Mason	540 Johnson St.	Healdsburg, Cal.
6AJN	D. O'Brien	643 Porier St.	Oakland, Cal.
6AJO	C. B. Schuler	604 Third St.	San Diego, Cal.
6AJP	L. Wolfson and W. Burgess		Maricopa, Cal.
6AJQ	H. Schulz	1477 Benton St.	San Jose, Cal.
6AJR	R. L. Roy	941 Court St.	Reno, Nev.
6AJS	E. Josselyn	620 Golden Gate Ave.	San Francisco
6AJT	Humbolt County High School		Winnemucca, Nev.
6AJU	O. Buckman		Farmington, Cal.
6AJV	R. M. Bottoms	1146 P St.	Fresno, Cal.
6AJW	W. Bolberg	541 Yosemite St.	Manteca, Cal.
6AJX	A. Andreason		Richfield, Utah.
6AJY	H. C. Lovell	10 Mosswood Road	Berkeley, Cal.
6AJZ	F. J. Saunders	2515 LeConte Ave.	Berkeley, Cal.
6AKA	G. S. Kimball	1041 East Seventeenth St.	National City, Cal.
6AKB	R. D. McCurdy	142 Pine Ave.	Los Angeles, Cal.
6AKC	J. W. Morton, Jr.	1515 Clayton St.	San Francisco
6AKD	G. E. Hulstead	1566 Tenth St.	San Diego, Cal.
6AKE	K. W. Nicholson	P. O. Box 156	Woodlake, Cal.
6AKF	R. M. Bollinger		Cardiff-by-the-Sea, Cal.
6AKG	W. Barnes	408 Nutmeg St.	San Diego, Cal.
6AKH	C. Maass	520 Twenty-first Ave.	San Francisco, Cal.
6AKI	V. C. Hammond	440 Patchett St.	Napa, Cal.
6AKJ	P. H. Goodwin		Oildale, Cal.
6AKK	J. C. Arbuckle	343 Tenth St.	San Diego, Cal.
6AKL	R. L. Rogers	4102 Campus Ave.	San Diego, Cal.
6AKM	E. L. Pickett	6057 Meridian St.	San Diego, Cal.
6AKO	A. B. Barnes	1203 Twenty-fifth St.	San Diego, Cal.

PACIFIC COAST ADVISORY COUNCIL TO MEET AUGUST 15

THE first quarterly meeting of the Pacific Coast Advisory Council will be held in San Francisco on Tuesday, March 15th, at 7 p. m., in the Palace Hotel.

A banquet of radio men will make the opening of the first assemblage of the recently formed Council. Major J. F. Dillon is Chairman of the Council and with the assistance of five of our most prominent Western radio men it is believed that many startling decisions will be made. Radio Clubs on the Pacific Coast are asked to send arbitrary or other matter for discussion to the Chairman of the Council at the first opportunity.

Wavelength regulations for CW and radio telephone equipments will be discussed and steps will be taken to permit of the use of longer wavelengths for the undamped systems as used by amateurs.

Radio Clubs in the vicinity of San Francisco are invited to send delegates to the first meeting of the Council. The San Francisco Radio Club, Inc., is assisting Major Dillon in his work and full information may be had by writing to the Secretary.

As many radio men as possible are asked to attend the banquet. The charge will not be prohibitive and a rip-roaring time will be had by all. Accommodations for out-of-town guests will be made by the local radio club. It will be necessary to have the arrival data in the hands of the club at least ten days before the affair takes place.

All matter to be arbitrated must be submitted in writing in order that a full account of the proceedings may be kept on file.

The formation of the "Council of Six" has been highly lauded by officials of the many radio companies in San Francisco.

Order Your Radio Goods by

THE SENSATIONAL success of the Continental Store in New York, has lead to the extension of Continental Service to all parts of the United States. Customers here in our store have marvelled at finding such complete assortments in one store; they have wondered at a radio store so up-to-date in new apparatus; they have been delighted with the courteous, interested attention they received.

Every advantage of our location,—in the heart of New York,—of our standing with all the leading radio manufacturers,—and of our ideals of service and the square deal, are now available for you, wherever you live. Remember

Our Word of Honor to You is Our Guarantee.—Let Us Prove it!

C.W. Apparatus

WE ARE making a specialty of everything needed for continuous wave transmission. If there is any item omitted from this list, write us for it.

C. W. INDUCTANCES

No. 181 Tuska C.W. Inductance $7.50
No. 181 Tuska C.W. Inductance, unassembled..... 5.00
No. 182 Tuska C.W. Inductance 10.00
No. 182 Tuska C.W. Inductance, unassembled..... 7.00
No. 183 Tuska C.W. Inductance 12.50
No. 183 Tuska C.W. Inductance unassembled..... 10.00

CHOKE COIL

Acme 1½ Henry, 500, M. A. Single Coil..... $6.00
Acme 1½ Henry, 500, M. A. Double Coil..... 8.00
Acme 1½ Henry, 150, M. A. Single Coil..... 4.00
Acme 1½ Henry, 150, M. A. Double Coil..... 6.00
C. E. Co., ZRX 8 Henry, 150 M. A. Single Coil..... 3.75

TELEPHONE TRANSMITTERS

Sterling Microphone..... $2.50

RESISTANCES (Ward Leonard)

Ward Leonard Resistance, 5000 ohm..... $1.70
Ward Leonard Resistance, 10000 ohm..... 2.95
Ward Leonard Resistance, 1500 ohm..... 1.50
Ward Leonard Resistance, 12000 ohm..... 3.50
Lavite Resistance 48000 ohm for Radio frequency amplifiers 3.00

MODULATION TRANSFORMERS

Acme A-3 unmounted $7.00
Acme A-3 semi-mounted .. 5.00
Acme A-3 unmounted 4.50
C. E. CO. ZRM MODULATION TRANSFORMER 4.50

GRID LEAKS

Marconi 1, 2, 3 or 5 megohms $1.25
Chelsea Variable ½ or 5 megohms, 10 values.... 3.00
Chelsea Oscillator..... 3.00

METERS (Weston Model 301)

Model 301 0-3 amperes flush $8.50
Model 301 0-5 amperes flush 8.50
Model 301 0-50 volts flush.. 8.50
Model 301 0-100 Milli-amperes flush..... 8.50
Model 301 0-300 Milli-amperes flush..... 8.50
Model 301 0-500 Milli-amperes flush..... 8.50
Model 301 0-800 Milli-amperes flush..... 8.50

METERS (Hot Wire)

No. 127 Gen. Radio flush 0-1 Amp..... $7.75
No. 127 Gen. Radio flush 0-3 Amp..... 7.75
No. 127 Gen. Radio flush 0-10 Amp..... 7.75
No. 127 Gen. Radio flush 0-5 Amp..... 7.75

RHEOSTATS

214 Gen. Radio front or back mounted..... 2.50
Paragon Rheo. front or back mounted..... 1.75
Mesco Porcelain base..... 1.40

BUZZERS for BUZZER MODULATION

Century 168 Buzzer..... $2.50
Mesco No. 55 Buzzer..... 2.50
Mesco 251 Buzzer..... .95
HIGH FREQUENCY CHOKE COILS..... 1.50
Electrodyne Rectifier consists of 500 V Transformer and 2 rectifying vacuum tubes all mounted ready for use. No. 25 R. T. Rectifier, less tubes 35.00
No. 25 V. T. Vacuum tube each..... 7.00
TRANSMITTING TUBES 7.50
Gen. Radio Drum Switch. 6.50
G. R. TRANSMITTING TUBE SOCKET..... 2.50

JEWELL METERS

Model 33 0-1 flush..... $6.50
0-3 flush 6.50
0-5 flush 6.50
0-50 Volts flush 6.50
0-500 Volts flush ... 15.00
0-50 Mil Amp..... 6.50
0-100 Mil Amp..... 6.50
0-300 Mil Amp..... 6.50
0-500 Mil Amp..... 6.50

JEWELL THERMO AMMETERS

0-1 Amp $18.00
0-3 Amp 18.00
0-5 Amp 18.00
0-10 Amp 18.00

TRANSFORMERS (For C.W. Work)

Acme, 200 Watt, mounted..$20.00
Acme 200 Watt, unmounted 16.00
Acme 50 Watt, mounted.. 15.00
Acme 50 Watt, unmounted 12.00

MOTOR GENERATORS

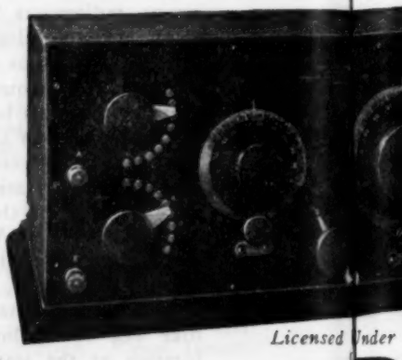
International 500 V 100 Watt AC Drive..... $99.00
International 500 V 100 Watt DC Drive 110.00
Electric Specialty Co. 350 V 50 Watt AC or DC.. 97.00

CONDENSERS

WE 21 A A 2 M F D tested at 1000 volts, each..... $2.50
Dubilier 2 5 M F D Mica Condenser, tested at 1800 Volts 6.00
Dubilier .0005 Grid Condenser for transmitting sets 1.00
High Voltage Variable Air Condenser will stand 1000 V Capacity .001 M. F. D. Just the condenser for your Antenna circuit 29.00

GET YOUR COPY OF OUR NEW 112 PAGE CATALOGUE

It contains undoubtedly the widest assortment of radio goods ever assembled together. The appendix contains tables for quickly figuring all radio calculations, as well as the conventional signals, abbreviations, etc. This valuable catalogue mailed anywhere in the world for 25 cents. Send for it today.



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THERE ARE plenty of receiving Paragons. However, the di is invariably far greater tha A genuine Paragon R. A. Ten c *but,* its a Paragon,—there is no superiorities against any other r

Wave length, 160 to 1000 meters.
Amplification 100 times.
No dead end losses whatever.
Vernier attachments on all controls.
Coupling has scale of 180°.

Price, Eighty-five

For Your Own Protection: made only by Adams-Morgan C tal and Affiliated dealers.

If it isn't an R. A. TEN,—it
Look for the full name engrav

AMPLIFYING TRANSFORMERS

No. A-2 Acme, mounted ..$7.00
No. A-2 Acme, semi- " 5.00
No. A-2 Acme, unmounted 4.50
No. 226-W Federal 7.50

"B" BATTERIES

No. 7625 Standard 22.5 V. small $1.50
No. 7625 Standard 22.5 V. large 2.65
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No. 766 Eveready 22.5 V. large 3.50
No. 763 Eveready 22.5 V. small 2.25
No. 703 Eveready flashlight cells, set of 10 45 V..... 3.50

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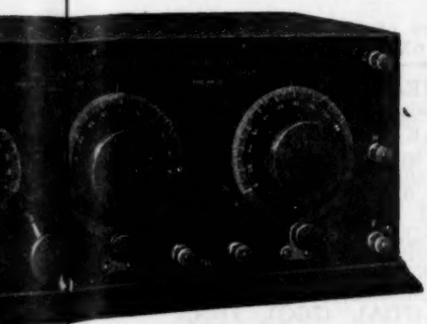

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Short Wave Receiver

of receiving sets for less money than
ever, the difference in performance
greater than the difference in price
. A. Ten costs Eighty-five Dollars.
here is no better. Check up these
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1000 24% greater selectivity than even the Paragon R.A. 6.

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on all Guaranteed for two years.

"The weaker the signal, the
180°. stronger the amplification."

Eighty-five Dollars

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Bangay, Part 1..... 1.75
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Both for.. 3.25

Robinson's Manuel of Wireless Tel..... 2.50
Consolidated Call-Book, (new edition)..... 1.50

AUDION CONTROL PANELS

No. RORA Grebe, in cabinet $12.50
No. RORH Grebe with tickler connections.... 17.00
No. ZRD Clapp-Eastham (new type) 12.00
No. Y-1 Acme (latest model) 10.00
No. P-500 DeForest audion ultra-audion type with 45 V "B" battery..... 24.00
Adams-Morgan "Paragon special" just out..... 6.00
A1-10 Radio Craft..... 15.00

t. G.72 J. DIBLASI, Sec. J. STANLEY, Treas.

6 Warren St., New York

As far as we know, no customer here in our store has ever been disappointed with the treatment he received. You may be sure, we will do everything in our power to preserve this reputation in our dealings with you. Order your radio supplies direct from this ad, and expect,—shipments the day your order is received,—exact compliance with the terms of your order,—and apparatus that is packed to arrive in perfect condition.

You may send in your order in any form that is convenient for you. The order blank below is simply there for your convenience. We prefer remittance by check or P. O. Money Order.

Use this handy Order Blank today. It just fits a regular size envelope.

LOOSE COUPLERS

No. A-1 Arnold 3500 meters $22.00
No. Y-673 Clapp Eastham 3000 meters 14.00
No. 344 Murdock 1500 meters 9.00
No. RKAB Grebe Variometer-coupler 1000 meters in cabinet..... 25.00

VARIABLE CONDENSERS

Connecticut 41-C .001 MFD $6.50
Connecticut 42-C panel mounting 6.50
Gen. Radio 182 A. .007 MFD 12.00
Murdock 366 .001 MFD..... 4.75
Murdock 367 .001 MFD 4.75
Murdock 368 .0005 MFD..... 3 75
Chelsea 140 .0012 MFD..... 5.00
Chelsea 240 .00068 MFD..... 4.50

STORAGE BATTERIES

10001 4 V 60 Amperes Battery $14.50
10004 6 V 60 Ampere Battery 20.00
10005 6 V 80 Ampere Battery 26.25
All batteries are shipped fully charged.

ANTICAPACITY SWITCHES

No. 1424 W D P D T 12 springs 2.80
No. 1426 W D P S T 4 springs 2.55
No. 1427 W S P S T 4 springs 2.60

TELEPHONE JACKS

1421 W Open Circuit Jack..$ .70
1422 W Closed Circuit Jack .85
1423 W Two Circuit Jack 1.00
1428 W Plug 2.00
Special Creco Plug..... 1.50

DUO LATERAL COILS

	Mounted	Unmounted
DL 25	$1.65	$ .90
DL 35	1.70	1.00
DL 50	1.75	1.10
DL 75	1.85	1.20
DL 100	1.95	1.30
DL 150	2.10	1.40
DL 200	2.20	1.50
DL 250	2.30	1.60
DL 300	2.45	1.80
DL 400	2.60	2.00
DL 500	2.75	2.20
DL 600	3.05	2.50
DL 750	3.30	2.70
DL 1000	3.55	2.90
DL 1250	3.85	3.50
DL 1500	4.10	4.00

Continental Radio and Electric Corp.,
Dept. G72., 6 Warren St., New York.

Gentlemen:

Please send orders checked off below by return mail.

☐ Paragon R.A. Ten Amplifying Short Wave Receiver. Remittance enclosed for Eighty-Five Dollars.

☐ Booklet describing and illustrating all the superiorities of the Paragon Receiver in detail. Free.

☐ Your new 112 page radio catalogue, listing all worth while makes of radio goods. Remittance enclosed for 25 cents.

Please send apparatus listed below, as described in your advertisement in Pacific Radio News. It is understood that this order is to be shipped immediately, and to arrive in perfect condition. If I am not thoroughly satisfied, the goods are to be returned at your expense, and my remittance refunded in full.

1 .....

2 .....

3 .....

4 .....

5 .....

Total remittance enclosed herewith.....

Name .....(Print here)

Address .....

City or town..... State.....

CALLS HEARD BY WESTERN AMATEURS

CALLS HEARD AT STATION 6AHQ MONETA, CAL.

6AH, 6AK, 6AN, 6AS, 6BJ, 6BQ, 6CP, 6DF, 6CU, 6EA, 6EB, (6EF), (6EK), (6EN), (6ER), 6EV, 6FL, 6GA, 6GH, (6HY), 6IF, (6IL), 6JD, (6KA), (6KZ), 6KC, 6KP, 6KY, 6ML, 6MN, 6MZ, 6MJ, (6NY), 6JI, 6OC, 6OD, 6PC, 6PD, 6OR, 6BQ, 6WU, 6CU, 6ZA, 6ZN, (6TL), 6BN, 6IG, 6GA, 6AAB, (6ABP) 6ADS, 6ADU, (6ADX), 6AEF, 6AEM, 6AFN, 6AFW, 6AGP, 6AHU, 5ZA, 7IN.

Stations hearing 6AHQ please QSL.

CALLS HEARD BR 6EA (Additional)

Heard: 6ACD, 6AFN, 6AFU, 6AFY, 6AS, 6BB, 6CI, 6FH, 6GY, 61-CW, 6JQ, 6PO, 6TH, 6ZO, 7LN, and 9LR.

Worked: 6AEA, 6BQ, 6DK, 6FI, 6GF, 6GK, 6NH, 6NO, 6OW, 6TC, 6ZR, 7ZR, 7YA, 7ZJ and "FD."

During January station 6EA was reported heard by 2KF (Irvington, New Jersey); 5XA (Auburn, Alabama); 5AL (Greenville, Texas); 9DU (Independence, Missouri); 9IF (Giltner, Nebraska), and 9LR (Anthony, Kansas).

CALLS HEARD AT 6MX (San Francisco)

6CQ, 6DP, 6EJ, 6EN, 6ER, 6FH, 6GI, 6IY, 6JD, 6OH, 6SK, 6TC, 6TU, 6ABP, 6ACW, 6AIL, 7AD, 7GQ, 7KK, 7ZI, and 7YA.

The call letters of 6MX were incorrectly listed as 6XM in our last issue.

CALLS HEARD AT 6AH (Oakland, Cal.)

(5ZA), (6AAK), (6ABP), 6ACR, 6AFY, (6AGF), (6AFN), (6BQ), (6CV), 6DI, (6DP), (6FS), 6FH, (6GF), (6GI), 6HY, 6HX, (6HH), 6IF, (6IG), 6II, 6IL, (6IC), (6IU), (6JI), (6JT), 6KQ, 6KM, 6MZ, (6MN), (6NY), (6OH), 6PJ, 6PM, 6PQ, (6PR), 6QM, 6QR, (6SK), 6WM, 6WN, 6WR, (6ZA), 6 ZH, 6ZM, 6XZ, (7AD), (7BP), (7CC), (7ZJ), (7DA), (7GQ), 7HN, (7M), (7JW), (7KK), (7ZI), 7ZB, 7ZA, 7NE, (7YA), 7YS, and 9YW readable six feet from the phones on January 19 at 11 p. m., Pacific Time, wave-length 375 meters. He is located in Rapid City, South Dakota.

CALLS HEARD AT 6AIF (Bakersfield, Cal.)

5XD, 5ZA, 5ZJ, 6ACD, 6ADA, 6ADX, 6AE, 6AFN, 6AGF, 6AIO, 6BAA, 6BAB, 6BAC, 6BJ, 6BQ, 6CZ, 6EB, (6EJ), 6EN, 6ER, 6FI, 6FI, 6FN, 6GQ, 6IR, 6ID, 6IR, 6KM, 6KP, 6OH, 6PR, 6SK, 6UO, 6ZA, 6ZE, 6ZK, 6ZM, 6ZN, (7GQ), 7IN, 7YA, 7YG, 7ZH.

6BAA, 6BAB and 6BAC are stations operated by the Southern California Edison Co. Mr. Winser, 6AIF, spent his furlough at his home in Bakersfield during the latter part of January and is now working the U. S. Naval Radio Station at Honolulu, T. H.

HEARD AT 6JJ, FRESNO, CAL.

5ZA, 5ZZ, 6AH, 6AJ, 6AK, 6AN, 6AAB, 6AAK, 6AAT, 6AAW, 6ABP, 6ADE, 6ACA, 6ACD, 6AIL, 6ADU, 6ADX, 6AFU, 6AFY, 6AGF, 6BJ, 6BQ, 6CO, 6CV, 6DI, 6DP, 6DY, 6EC, 6EL, 6EN, (Spk) 6EN, (CW) 6EJ, 6EX, 6EB, 6FI, 6FT, 6FX, 6GE, 6GF, 6GI, 6GR, 6HY, 6IC, 6IG, 6IL, 6IR, 6IU, 6IX, (CW) 6IE, 6IN, 6IT, 6KA, 6KF, 6KI, 6KQ, 6KS, 6KZ 6NE, 6NY, 6OC, 6OH, 6OL, 6OT, 6PC, 6PE, 6PL, 6PO, 6PR, 6OM, 6SK, 6TC, 6TL, 6TY, 6UM, 6VS, 6WR, 6XX, 6XZ, 6ZA, 6ZB, 6ZH, 6ZK, 6ZM, 7AD, 7BH, 7BP, 7BO, 7BR, 7BV, 7CC, 7DA, 7FD, 7GQ, 7GY, 7IM, 7IU, 7KK, 7YA, 7YS, 7ZH, 7ZI, and 7ZJ.

6JJ would be pleased to have any stations hearing him to QSL.

PS.—At about ten P. M. on the 11th of November, while experimenting with a counterpoise ground, Radio Shop regenerative set, and Acme units consisting of a detector and two-step amplifier, 6JD, 6ER and ex 6JM were heard 140 feet from the phones in the open air. I was using one Baldwin phone in a phonograph horn and the other was laying on the table. 6EA, 6EB, 6FE, and 6BQ were loud enough to copy about 60 feet, also in the open air.

SPECIAL FEATURES IN APRIL ISSUE: Aerial Mail Arc Stations; Another fiction story by Mr. Mathison; The Jaencke Arc, and others. Don't Miss it!

RADIO CLUB DIRECTORY

Published every month. It keeps you posted on important meetings.

United Radio Telegraphers' Association, Pacific Coast Division—Rooms 418-420, 24 California St., San Francisco Cal. Phone Douglas 706. All commercial operators eligible for membership. Address communications to above address.

San Francisco Radio Club, Inc., S. F. Gymnastic Club, Sutter and Divisadero Sts. San Francisco, Calif. Meetings every Thursday evening at 8:30 P. M. Visitors welcome at any meeting except first meeting of the month. Initiation fee $2.50. Monthly dues 50c. For experimental and commercial radio operators, address communications to the secretary. —adv.

HEARD AT 6CU

Los Angeles, Cal., Oct., Nov., Dec., 1920

5ZA, 6AAJ, 6AAK, 6AAT, 6AAW, 6ABJ, 6AE, 6AFU, 6AFY, 6AGF, 6AH, 6AJ, 6AK, 6AN, 6AT, 6BJ, 6BN, 6BP, 6BQ, 6CN, 6CO, 6CP, 6CV, 6CW, 6DH, 6DK, 6DP, 6EJ, 6EX, 6FE, 6FI, 6FS, 6GE, 6GF, 6GO, 6GR, 6IB, 6IC, 6IG, 6II, 6IY-CW, 6JI, 6JN, 6JR, 6KM, 6MZ, 6NE, 6NO, 6NX, 6OH, 6OT, 6PJ, 6PR, 6QN, 6QR, 6QY, 6RE, 6XX, 6XZ, 6ZA, 6ZB, 6ZE, 6ZH, 6ZK, 7BP, 7BQ, **7CC**, 7DA, 7GY, 7YA.

The greatest distance heard is in black face type.

CALLS HEARD AT 6CH

5ZA, 6AK, 6AAT, 6ACA, 6BQ, 6CV, 6DK, 6DP, 6EB, 6ER, 6EN, 6EJ, 6FH, 6GQ, 6HY, 6IC, 6IF, 6JD, 6JM, 6JI, 6KP, 6KI, 6LY, 6OL, 6OP, 6OH, 6QR, 6SK, 6TS, 6XZ, 6ZN, 6ZA, 7BY, 7BQ, 7BP, 7BK, 7BR, 7BC, 7CC, 7CV, 7CP, 7CD, 7CW, 7DA, 7DE, 7DI, 7ED, 7GQ, 7IV, 7IN, 7RK, 7ZJ, 7ZI, 9WU, 9EE, 9UV, 9LR.

(New address of 6CH is H. C. Brown, 1737 Union Street, San Francisco. Anybody hearing 6CH kindly drop card. All communications answered. Working hours 11 p. m. to 2:30 a. m. every night.) Gee, what a night-hawk.—Ed.

HEARD AT 6OC BETWEEN DECEMBER 7th-FEBRUARY 7th

5ZA, (6AS), (6AK), 6AY, (6CV), (6DP), 6DH, 6DK, (6EA), (6EB), (6EJ), 6EK, (6EN), 6ER, (6FH), (6FS), 6GF, 6GI, (6GM), 6GP, 6GR, 6HH, (6IC), 6IF, 6II, 6IL, 6IU, (6ID), 6JI, 6JJ, (6KA), 6KM, (6KP), 6MH, 6MN, (6OH), 6PE, 6PQ, 6QR, 6RE, (6SK), 6TL, 6XZ, 6ZA, 6ZH, 6ZO, (6ZN), (6AAK), 6ABM, (6AFN), 6AFU, 6AGF, 6AIO, 7BJ, (7BP), 7BR, 7CC, 7CW, (7DA), 7DS, 7ED, (7GQ), 7HN, (7IN), 7YA, 7ZB, (7ZJ), 9ET, 9WU.

The EDITOR'S MAIL BAG

Our Readers Are Invited to Send Contributions for Publication in this Department.

San Francisco, Jan. 29, 1921.

Editor, Pacific Radio News,
50 Main Street,
San Francisco, Cal.

Dear Sir:

I would like to call your attention to the account published in the San Francisco Bulletin of January 21, 1921, which is but one of several mythical long distance radio telephone records reported during the past few weeks by Pacific Coast amateurs and printed in the newspapers. The article about the Avalon radio telephone has absolutely no foundation and is a product of the vivid imagination of either the newspaper reporter or the amateur mentioned in the article. I would regret to cast any reflections on the latter, but the Avalon and Long Beach stations of the telephone company are equipped with specially designed receivers for only one wave length, and the operators are forbidden to change the adjustments. Hence the idea of talking to Annapolis

(Continued on page 267)

WASHINGTON'S BIRTHDAY RELAY

(Continued from page 251)

get full credit for their co-operation and efficiency of their sending stations.

Traffic Manager H. Schnell will instruct the following stations later to handle M.S.G. East to West and the idea being to have short jumps so all may hear them. The District Superintendent of each A.R.R.L. district will Q.S.T.—M.S.G. through his entire district after traffic has been cleared but not indulge in any unnecessary traffic of course.

Message West to East will be pushed as fast as possible through the different routes below and in case of interference —keep incessantly at it.

Sending Stations For Relay

1 AW—2RK or 2JU—3DH, 3XF or 3KM, 3AEV or 3BZ, 5DA or 4AG or 4YB—5ZP or 5YH, 5ZC or 5ZG, 5ZA, 6ZH or 6JT, 6 BZ or 6BQ, 6ZK, 6KP or 6JD or 6JM going West.

8ZW, 8ZL, 9ZN, 9JN, 9ZL, 9HT, 9ZC, 9ACF, 9UP, 9WU, 6ZH, 6JT, 71M, 7CC, 7FT, 6BZ, 6BQ, 7ZB, 7BP, 7DA, 7ZJ—Going West.

6ZE, 6BZ, 6BQ, 6ZH, 6JT, 9ACF, 9 UP, 9LR, 9HT, 9KV, 9LC, 9JN, 9ZN, 8ZL, 8ZD, 9ZJ, 8ZY, 8ZW, 2RK, 1AW—Going East.

Above stations may not all send as calling station may decide to shorten route used and this all depends on decision of Traffic Manager H. Schnell and District Superintendent of that district.

The Illinois Watch Co. of Springfield, Ill., will send out each night during February after their time and weather report —information about the relay. Listen for it. They have also donated a dandy "Illinois" watch, so some of you late birds can win a prize and go to bed some night on time.

Last—keep quiet—listen—deliver M. S. G. Follow instructions, mail it in and sit tight—watch the magazines and see if you are a winner.

Cordially,
W. KIRWAN,
Box 148, Davenport, Ia.

Any commercial operators on ships at sea will confer a favor on the whole amateur body by sending in a good report in detail.

FINANCIAL NEWS

Moorhead Co. Closes Contract With Marconi, G. E. and Am. T. & T.

Moorhead Laboratories of San Francisco, which operates the largest factory in the world devoted exclusively to the manufacture of vacuum tubes, closed a most important contract with the Radio Corporation of American (Marconi), the General Electric Company and the American Telephone & Telegraph Company, granting a patent license under the Fleming valve and DeForest audion patents.

Federal Wireless Bonds Are Sold

More than $300,000 worth of the Federal Telegraph Company's first mortgage 8 per cent serial gold notes, of which $500,000 worth were placed on the market, have already been sold, according to Girvin & Miller, Pacific Coast bond firm, who is handling the issue in Los Angeles. These notes will be secured by an absolute first closed mortgage on all of the property of the company now owned and hereafter acquired, consisting of wireless stations in San Francisco, Portland, Los Angeles and San Diego, together with a factory at Palo Alto, which manufactures the wireless equipment.

Unlisted Securities

	Bid	Asked
Moorhead Laboratories	$0.24	$0.25
National Radio	.19	.20
Poulsen	2.00	2.50

San Francisco Stocks

Federal Telegraph Co., Feb. 4	$6.00

THE FALL OF SAMUEL JONES

(Continued from page 254)

for a mislaid back collar button; not finding it, he desperately stuck his collar on without it. Throwing an arwy half-hitch into his necktie, he grabbed his hat and sallied forth. Striding down the gangway, he hurried to where Evelyn Campbell stood waiting for a steward to bring her suitcases ashore.

As Samuel Jones came rushing up, he suddenly noticed that a hard and solid-looking male person was standing near his fair Evelyn. From photographs that the chief wireless operator had seen in a sporting paper, he instantly recognized the fellow as Battling Bob Campbell, a Western heavy-weight slugger, with a record for one-round knockouts. Was he Evelyn's brother—?

"Oh, Bob, meet Mr. Jones," exclaimed Evelyn, smiling graciously upon Samuel, who had halted, uncertainly. "He is the chief radio man of the 'Wapama,' and he has been awfully nice to me—"

"Glad to meet yer," growled the husky prize-fighter, extending a wicked looking paw.

Gingerly, Samuel Jones put out his hand, and it was crushed in an iron grip that made the chief operator bite half through his tongue.

Evelyn Campbell put one dainty little gloved hand up on the boxer's broad shoulder, in an unmistakably affectionate manner, and smiled sweetly upon poor Samuel.

"This is my hubby," she said, naively.

History repeats itself, we are told, and this often seems to be true. Another cloudy autumn afternoon saw the "Wapama" pull away from that same pier in San Francisco, and, shortly afterward, another sweet young damsel came tripping along to the wireless-room door.

"O-o-o-o-h! Here's the wireless!" she cried, enthusiastically. "Please, may I come in, mister man?"

Samuel Jones slammed down the book that he was reading and twisted around in his chair.

"No, you can't come in!" he snapped, shortly and sourly. "It's against orders an' it's against the law, an' it's a ten thousand dollar fine an' fourteen years in the penitentiary; so get away from here an' stay away from here!" He glared, savagely.

With a gasp of terror, the fair one fled.

Disdaining to notice a clearly audible snicker from the top bunk, Samuel Jones turned back to Sir Sigismund Mugfoot's adventures in Bonga Tonga, and read how that intrepid adventurer slew three hundred blood-thirsty cannibals single-handed, by throwing red pepper at them until they sneezed themselves to death; after which he bound their hideous wives in rattan and drowned them all in a lake.

(The End)

RADIO FOR LIFE SAVERS ASKED

GOVERNMENT wireless apparatus is to be installed at all stations of the coast guard along the Pacific Coast as a further means of quick assistance to vessels in distress and for the protection of life on wrecked vessels if a petition of local shipping interests is heeded in Washington.

The wreck of the steamer "Klamath" is cited as an example of inadequate means of protection for coast vessels. Due to the hurricane which swept the coast and drove the Klamath ashore at Del Mar all telegraph and telephone lines in that vicinity were down.

Communication between this port and the Point Arena life guard station, only twenty miles north of the wreck, was interrupted. As a result the life guards at Point Arena did not know there was a wreck until twenty-four hours after the passengers had been saved, it is said.

Wireless sets at each coast guard station would permit the life savers to pick up the "S. O. S." calls and render prompt aid.

District Superintendent of the Coast Guard Captain Peter Jensen said that the installation of wireless equipment at these coast guard stations would be invaluable.

It was pointed out that the government has much wireless equipment at coast navy yards which was purchased during the war and which could be utilized.—S. F. "Examiner".

THE EDITOR'S MAIL BAG

(Continued from page 261)

and the receiving of a reply from that station is absurd on the face of it. As for Spain and Portugal, my experience with radio in those countries is such that I would seriously doubt the ability of Spanish or Portuguese operators to hear anything more than a couple of hundred miles away, let alone recognize the source of the conversations referred to in Mr. Axe's statements.

Let us hope that there are no more reports such as the one mentioned above, as it is very misleading to the public and casts discredit on the amateurs repeating such things to the newspapers, who are only too ready to publish anything of a sensational nature.

Very truly yours,
G. M. BEST (6JX).

Here is the clipping from the San Diego "Union" that deals with the communication between Annapolis and Avalon:

ANNAPOLIS-AVALON RADIO PHONE TALK HEARD BY AMATEUR

Escondidan "Listens In" and Hears Maryland Station Operator's Words Clearly

(Special to The Union.)

ESCONDIDO, Jan. 19.—Frank Axe, president of the Escondido Radio Club, while "listening in" with his wireless equipment at his home, two miles north of the city, had the interesting experience last evening of hearing a conversation between the operator of the commercial radio phone station at Avalon and the radio operator at the naval station at Annapolis, Md., and of hearing the operator at Annapolis tell the operator at Avalon that his message had been heard by operators at stations in Portugal and Spain.

AMRAD COMPANY TO GIVE QUENCHED GAPS TO AMATEURS

IN order to help reduce QRM by the more extensive use of quenched gaps and low power, the American Radio and Research Corporation is offering free during the month of March, one Amrad ¼ K. W. Quenched Gap with every induction coil. This offer is particularly directed to relay men and is intended to give tangible proof of the performance of this combination in actual use.

A schedule of broadcasts has been arranged for every Wednesday and Saturday during the duration of the special offer. Most of the stations listed below will use both the quenched gap and induction coil. In addition, some of the stations will employ an Amrad Coil for I. C. W.

The stations which will send out the QST messages every Wednesday and Saturday during March follows:

	E. S. T.
1 XE	4:30 p. m.
1 GY	9:00 p. m.
1 OJ	9:10 p. m.
1 AK	9:20 p. m.
1 FW	9:30 p. m.
2 CX	9:40 p. m.
2 PL	9:50 p. m.
3 EM	8:50 p. m.
8 AIW	9:10 p. m.
	C. S. T.
8 ZZ	9:15 p. m.
5XG	9:30 p. m.
8 HG	9:45 p. m.
9 ZH	9:50 p. m.
	P. S. T.
6HI	9:30 p. m.

SIBERIA EXPEDITION
(Continued from page 250)

house with lines leading under ground to the tanks and engines.

The station was completed in the early spring of 1919 and communication was immediately established with Cavite, P. I., and later with St. Paul, Alaska, and Cordova, Alaska. Messages were also transmitted to a French station near Irkutsk, Siberia, about two thousand miles inland along the line of the trans-Siberian railroad.

Due to the fact that the telegraph lines between Vladivostok and the interior were constantly being cut by the Bolsheviki, or other factions, this overland service proved to be of inestimable value to the French and Czecho-Slovaks who were carrying out military operations as far back as Omsk, approximately four thousand miles inland.

Phenomenal results were obtained in receiving the world's high power stations. Press was copied daily from Lyons, France; Nauen, Germany; Rome, Italy; Washington, D. C., and San Francisco, Calif. The press was published by the American Expeditionary Forces at Vladivostok and circulated in mimeographed form. It was free to the Russian newspapers free of charge, translated and published in the Russian language.

Instances were known where information by radio preceeded the cable by fifteen days.

The normal current used through the arc was approximately 80 amperes on 7,000 meters, the maximum current being 100 amperes, which was rarely used.

Most of the work was conducted on wave lengths between 6,000 meters and 8,000 meters, although the station could transmit on as high as 11,000 meters. The 6,000 meters wave was found advantageous for receiving at Cavite, P. I., where heavy static is almost a daily occurance..

Although the Vladivostok station is equipped with only a 60 K. W. Poulsen arc, the signals have been copied at phenomenal distances, on one occasion by a ship entering San Francisco harbor.

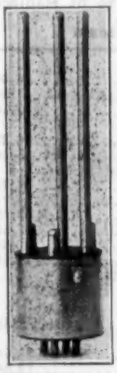
Paragon Rheostat

has become the standard filament resistance. For back of panel or table mounting. 2⅛-in diameter. 6 ohms., 1½ amps.

$1.75 Postpaid
Immediate shipment.
Standard VT Socket $1.00. Why pay More?

44 Volt Variable "B" Battery, $3.60

Include Postage on 4 Lbs.
Complete in handy wooden case and adjustable phosphor-bronze "Jiffy" connectors. Better than block batteries! If one 4.4 V. unit weakens prematurely, it can be **removed and replaced,** thereby not impairing the total voltage—making this **the best battery value on the market.**



Audiotron Adaptor

Consists of standard 4-prong base with brass supporting connectors. Permits mounting tube in **vertical** position, so filament will not sag and touch grid.

$1.75 Postpaid

Aerial Wire 1c Per Foot
7 strands No. 22 solid copper—tin plated to prevent oxidation. Include postage on 15 lbs. per 100 feet.

Lightning Switch $4.00
600 volts, 100 amps., S.P.D.T.

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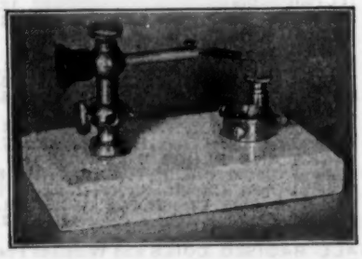
THE ONLY WIRELESS MINERAL DETECTOR MADE ON A SOLID PORCELAIN BASE. See Cut



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DEMONSTRATIONS recently given with Kennedy Receiving Equipment before the San Francisco Section of the American Society of Mechanical Engineers and the San Francisco Engineers' Club caused great astonishment on account of the wonderful reception of long and short wave signals from both near and far.

TYPE 100 LONG WAVE REGENERATIVE RECEIVER
Licensed under Armstrong U. S. Patent No. 1,113,149

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IF you are interested in long range records, as well as consistently superior everyday performance, you should have Kennedy Equipment in your station.

IF you live in or near San Francisco, come in and let us give you a demonstration. If not, write us to arrange a demonstration before your radio club. "Hearing is Believing."

BUY it from us direct if your dealer can't supply you with Kennedy Equipment. You take no chances. If you are not satisfied after 5 days' trial, send it back to us and we will refund your money. Catalog and price list of accessories on request.

THE COLIN B. KENNEDY COMPANY
INCORPORATED

RIALTO BUILDING **SAN FRANCISCO**

BRITISH TRY TO BALK WIRELESS IN CHINA

(Continued from page 252)

munications for the construction of one Shanghai plant. The British allege that it violates the government's contract with the Marconi company, which gives the latter concern a virtual monopoly on wireless construction in China.

Charles R. Crane, American minister to China, through Dr. W. W. Yen, the foreign minister, has suggested that cancellation of the contract with the Federal company be deferred, pending direct negotiations, which the Washington administration is said to be taking up with the British Government.

Important to U. S.

Crane feels the question is most important, according to the cablegram, as bearing on future American efforts toward direct intercourse with China.

Japan, which lodged a protest in January against the Federal contract on the ground that it infringed rights acquired two years ago by a Japanese company, has made an additional protest, while Denmark also has lodged one, alleging infringement.

The attitude of the Chinese foreign office, as unofficially expressed, is that the British and American contracts were executed by different departments of the government with different aims, hence there is no conflict. With regard to the Japanese contract, it is alleged the Japanese have not fulfilled the terms of the contract and thereby have relieved the ministry of communications from obligation incurred under it.—S. F. "Call."

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ALL amateur apparatus bought or made in accordance with the Radio Buyers' and Builders' Handbook invariably resell very profitably. Study my June, July, October and December display advertisements. See why and get your copy. R. Clark, Barnes Road, Newton, Mass.

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FOR SALE—Practically new Type R Thordarson one KW transformer and Thordarson .01 oil immersed condenser. Price on both $60.00. Chas. E. Blalack, 335 N. Ridgewood Place, Los Angeles, Cal.

FOR SALE—One 4,000 to 20,000 meter tuner. Has condenser and taps for variations for any wave from 4,000 to 20,000. If interested write to R. A., care Pacific Radio Pub. Co., 50 Main St., San Francisco.

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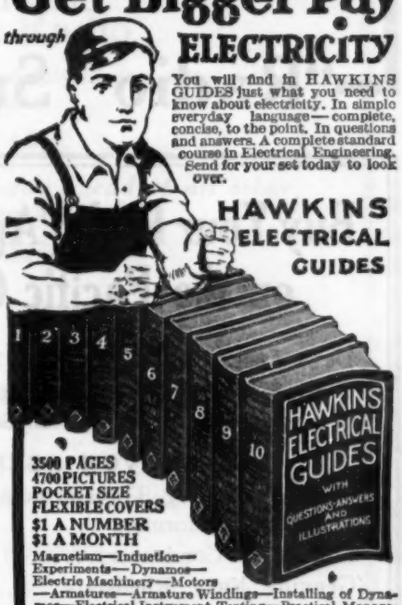

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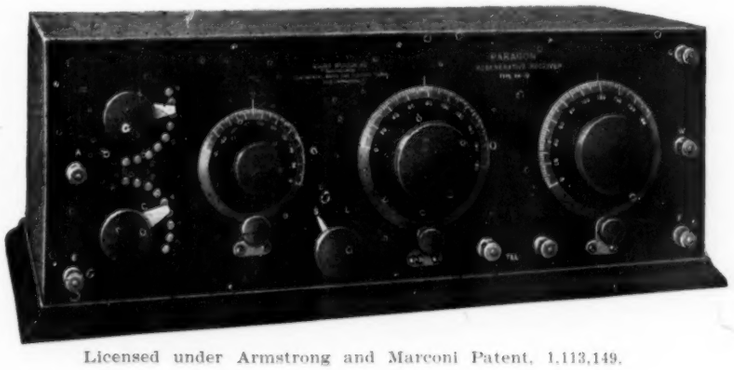

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